PIONEER

# Service Manual

*The photo shows the model UKE-7100.*

ORDER NO.
CRT-301-0

CASSETTE CAR STEREO WITH AM/FM ELECTRONIC TUNER

# UKE-7100 US, CA

CASSETTE CAR STEREO WITH AM/FM ELECTRONIC TUNER

# UKE-3100 US, CA

NOTE:
**For cassette mechanism description, refer to the following models.**

UKE-7100/US, CA → UKP-7200/US, CA (CRT-267-0)
UKE-3100/US, CA → UKP-5200/US, CA (CRT-267-0)

## SPECIFICATIONS

**General**

| | |
|---|---|
| Power source | DC14.4V (10.8~15.6V allowable) |
| Grounding system | Negative type |
| Max. current consumption | 1.3A |
| Dimensions (chassis) | 180(W)x50(H)x120(D)mm<br>[7-1/8(W)x2(H)x4-3/4(D) in.] |
| (nose) | 96(W)x42(H)x30(D)mm<br>[3-3/4(W)x1-5/8(H)x1-1/4(D) in.] |
| Shaft interval | 130 or 147mm (5-1/8 or 5-3/4 in.) |
| Weight | 1.6kg (3.5 lbs.) (UKE-7100)<br>1.5kg (3.3 lbs.) (UKE-3100) |

**Amplifier**

Continuous power output is 3.2W per channel min. into 4 ohms, both channels driven 50 to 15,000Hz with no more than 5% THD.

| | |
|---|---|
| Maximum power output | 6.5W + 6.5W |
| Load impedance | 4Ω (2~8Ω allowable) |
| Tone controls (bass) | ±10dB (100Hz) (UKE-7100) |
| (treble) | ±10dB (10kHz) (UKE-7100) |
| Loudness contour | +12dB (100Hz), +4dB (10kHz)<br>(volume: –30dB) |

**Tape Player**

| | |
|---|---|
| Tape | Compact cassette tape (C-30~C-90) |
| Tape speed | 4.76cm/sec. (+0.14cm/sec. –0.05cm/sec.) |
| Fast forward/rewind time | Approx. 100sec. for C-60 |
| Wow & flutter | 0.13% (WRMS) (UKE-7100)<br>0.15% (WRMS) (UKE-3100) |
| Frequency response (UKE-7100) | Metal: 50~16,000Hz (±3dB)<br>Normal: 50~12,000Hz (±3dB) |
| Frequency response (UKE-3100) | 50~12,000Hz (±3dB) |
| Stereo separation | 45dB |
| Signal-to-noise ratio (UKE-7100) | Dolby NR IN: 60dB (IHF-A network)<br>Dolby NR OUT: 52dB (IHF-A network) |
| Signal-to-noise ratio (UKE-3100) | 52dB (IHF-A network) |

**FM Tuner**

| | |
|---|---|
| Frequency range | 87.9~107.9MHz |
| Usable sensitivity | 16.8dBf (1.9μV/75Ω, mono) |
| 50dB quieting sensitivity | 19.2dBf (2.5μV/75Ω, mono) |
| Signal-to-noise ratio | 70dB (IHF-A network) (UKE-7100)<br>65dB (IHF-A network) (UKE-3100) |
| Alternate channel selectivity | 70dB (±400kHz) (UKE-7100)<br>50dB (±400kHz) (UKE-3100) |
| Distortion | 0.5% (at 65dBf, 1kHz, stereo) |
| Frequency response | 50~12,000Hz (±3dB) |
| Stereo separation | 40dB (at 65dBf, 1kHz) |

**AM Tuner**

| | |
|---|---|
| Frequency range | 530~1,620kHz |
| Usable sensitivity | 30μV (29.5dB) (S/N: 20dB) |
| Selectivity | 50dB (±10kHz) |

*These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.*

**Note:**
Specifications and the design are subject to possible modification without notice due to improvements.

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- Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

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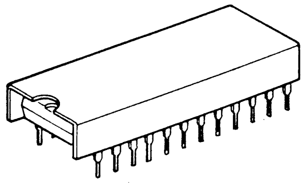
**CAUTION**
**When Handling IC PD7003A (PD7003B)**
**Please Observe:**

IC PD7003A (PD7003B) (IC1 in the control unit) is a C-MOS IC of extremely low power consumption and very high input impedance. Unless handled with special care, it could be damaged by static electricity induction. This IC is supplied with a shorting, cap (of aluminium foil) attached. When soldering, or performing other repair work, always attach this cap as shown below. Remove the cap after the repair has been completed.

Also, this type of IC must not be inserted in a polystyrene package for storage.



# 1. PARTS LOCATION

*NOTE*

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  *★★: GENERALLY MOVES FASTER THAN ★.*
  *This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

- UKE-7100

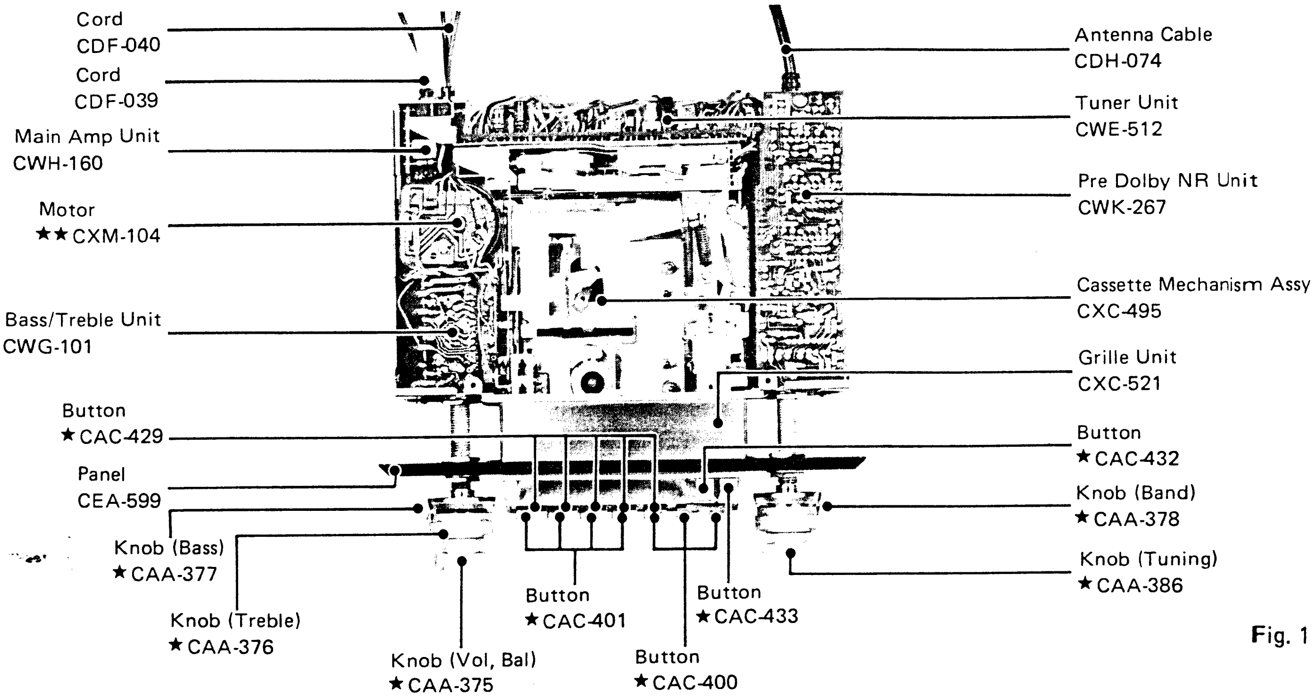

Cord
CDF-040
Cord
CDF-039
Main Amp Unit
CWH-160
Motor
★★CXM-104
Bass/Treble Unit
CWG-101
Button
★CAC-429
Panel
CEA-599
Knob (Bass)
★CAA-377
Knob (Treble)
★CAA-376
Knob (Vol, Bal)
★CAA-375
Button
★CAC-401
Button
★CAC-400
Button
★CAC-433
Antenna Cable
CDH-074
Tuner Unit
CWE-512
Pre Dolby NR Unit
CWK-267
Cassette Mechanism Assy
CXC-495
Grille Unit
CXC-521
Button
★CAC-432
Knob (Band)
★CAA-378
Knob (Tuning)
★CAA-386

Fig. 1

- UKE-3100

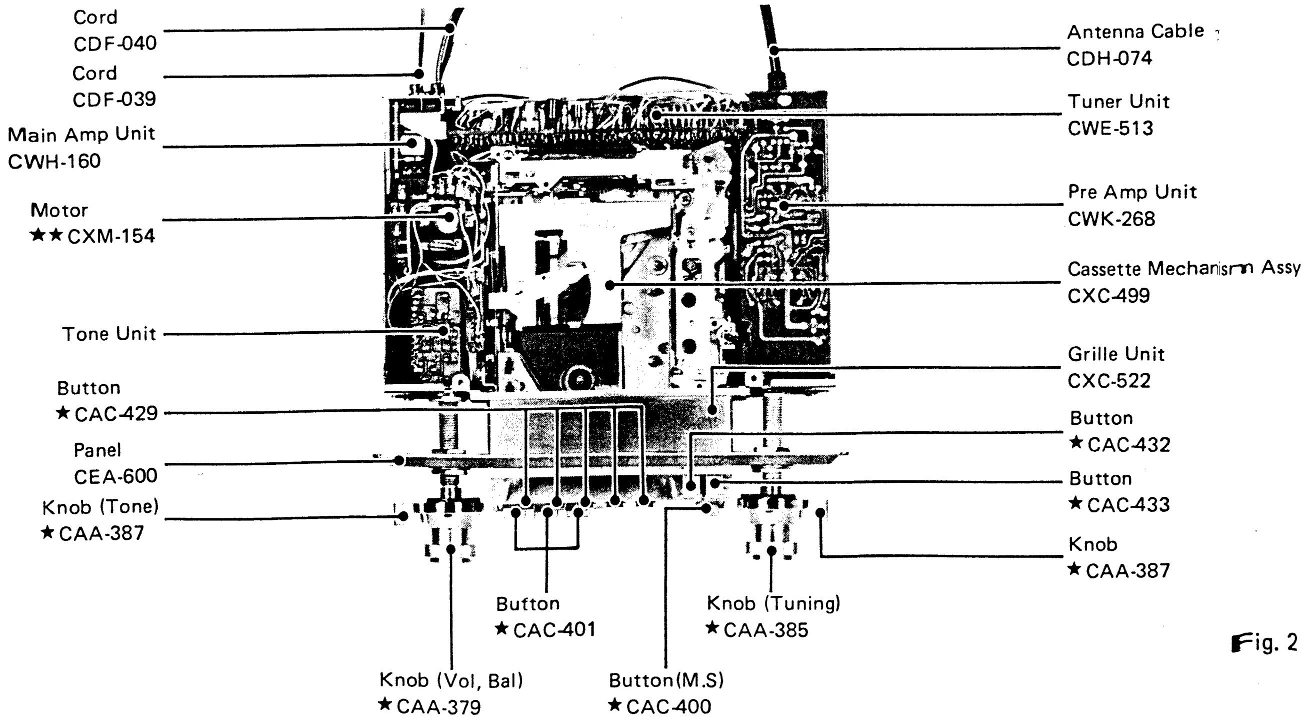

Cord
CDF-040
Cord
CDF-039
Main Amp Unit
CWH-160
Motor
★★CXM-154
Tone Unit
Button
★CAC-429
Panel
CEA-600
Knob (Tone)
★CAA-387
Knob (Vol, Bal)
★CAA-379
Button
★CAC-401
Button(M.S)
★CAC-400
Knob (Tuning)
★CAA-385
Antenna Cable
CDH-074
Tuner Unit
CWE-513
Pre Amp Unit
CWK-268
Cassette Mechanism Assy
CXC-499
Grille Unit
CXC-522
Button
★CAC-432
Button
★CAC-433
Knob
★CAA-387

Fig. 2

## 2. CIRCUIT DESCRIPTION

- Block Diagram (UKE-7100)

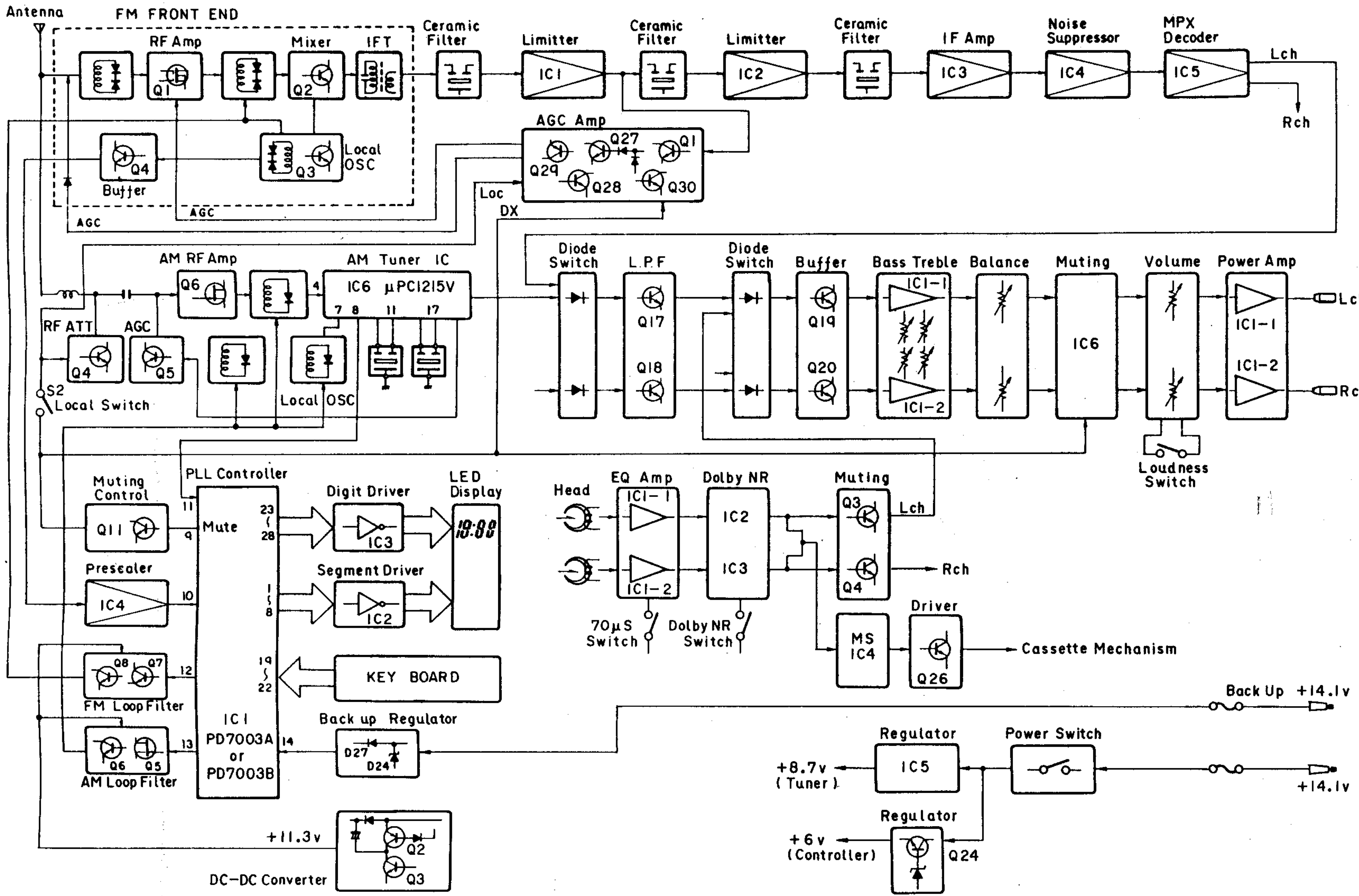

Antenna
FM FRONT END
RF Amp
Q1
Mixer
Q2
IFT
Ceramic Filter
Limitter
IC1
Ceramic Filter
Limitter
IC2
Ceramic Filter
IF Amp
IC3
Noise Suppressor
IC4
MPX Decoder
IC5
Lch
Rch
Buffer
Q4
Q3
Local OSC
AGC
AGC
AGC Amp
Q27
Q1
Q29
Q28
Q30
Loc
DX
AM RF Amp
Q6
AM Tuner IC
IC6 μPC1215V
4
7 8 11 17
RF ATT
AGC
Q4
Q5
S2
Local Switch
Local OSC
Diode Switch
L.P.F
Q17
Q18
Diode Switch
Buffer
Q19
Q20
Bass Treble
IC1-1
IC1-2
Balance
Muting
IC6
Volume
Power Amp
IC1-1
IC1-2
Lch OUT
Rch OUT
Loudness Switch
PLL Controller
Muting Control
Q11
11
9
Mute
Prescaler
IC4
10
Q8
Q7
12
FM Loop Filter
Q6
Q5
13
AM Loop Filter
IC1
PD7003A
or
PD7003B
23
28
1
8
19
22
14
Digit Driver
IC3
Segment Driver
IC2
LED Display
18:88
KEY BOARD
Back up Regulator
D27
D24
+11.3v
Q2
Q3
DC-DC Converter
Head
EQ Amp
IC1-1
IC1-2
70μS Switch
Dolby NR
IC2
IC3
Dolby NR Switch
Muting
Q3
Q4
Lch
Rch
MS IC4
Driver
Q26
Cassette Mechanism
Back Up +14.1v
Regulator
IC5
+8.7v (Tuner)
Power Switch
+14.1v
Regulator
+6v (Controller)
Q24

Fig. 3

## • Block Diagram(UKE-3100)

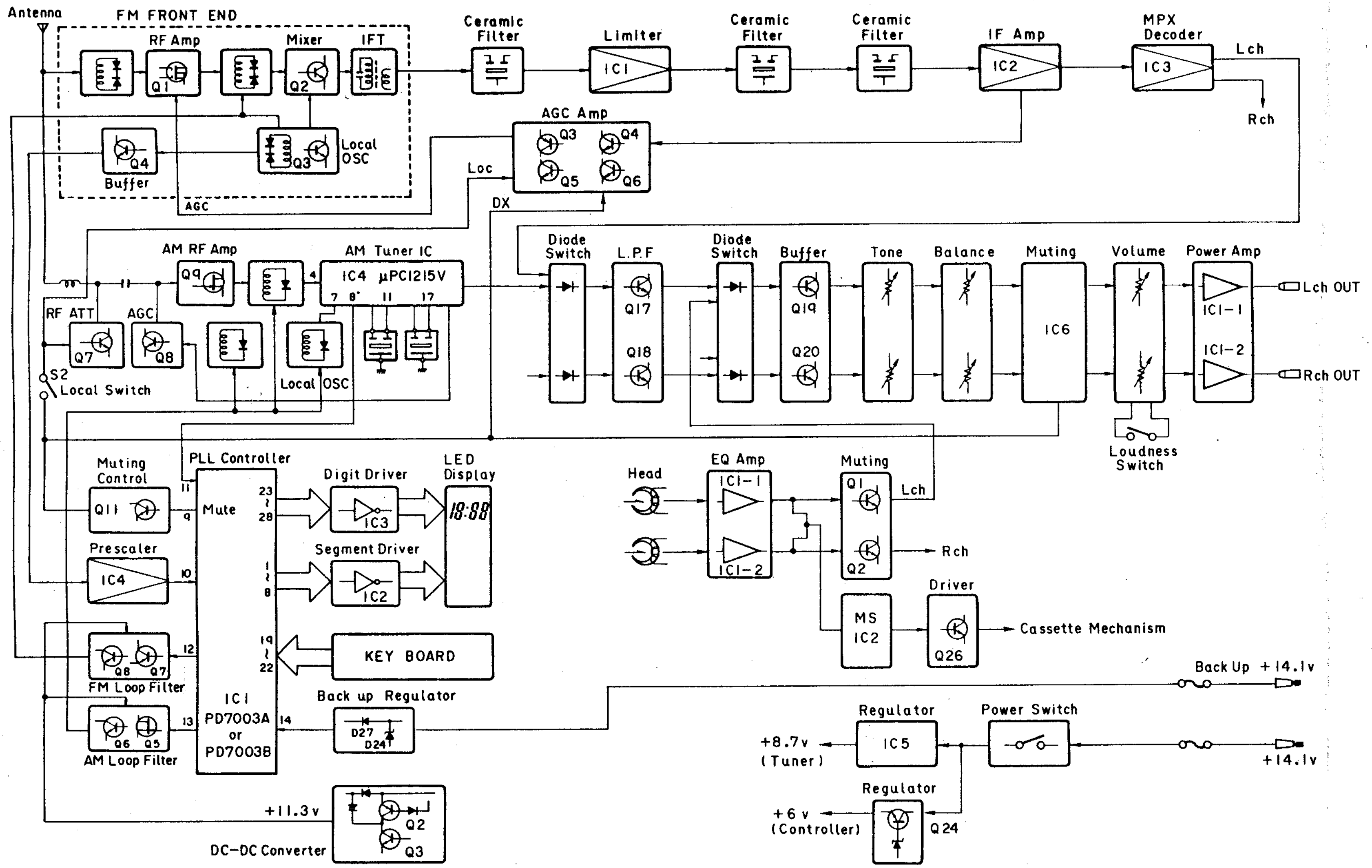

Antenna
FM FRONT END
RF Amp
Q1
Mixer
Q2
IFT
Q4
Buffer
Q3
Local OSC
AGC
Ceramic Filter
Limiter
IC1
Ceramic Filter
Ceramic Filter
IF Amp
IC2
MPX Decoder
IC3
Lch
Rch
AGC Amp
Q3
Q4
Q5
Q6
Loc
DX
AM RF Amp
Q9
AM Tuner IC
IC4 μPC1215V
4
7
8
11
17
RF ATT
AGC
Q7
Q8
Local OSC
S2
Local Switch
Diode Switch
L.P.F
Q17
Q18
Diode Switch
Buffer
Q19
Q20
Tone
Balance
Muting
IC6
Volume
Loudness Switch
Power Amp
IC1-1
IC1-2
Lch OUT
Rch OUT
Muting Control
Q11
PLL Controller
11
9
Mute
23 ~ 28
1 ~ 8
19 ~ 22
10
12
13
14
IC1
PD7003A
or
PD7003B
Digit Driver
IC3
LED Display
18:88
Segment Driver
IC2
Prescaler
IC4
KEY BOARD
FM Loop Filter
Q8
Q7
AM Loop Filter
Q6
Q5
Back up Regulator
D27
D24
+11.3v
Q2
Q3
DC-DC Converter
Head
EQ Amp
IC1-1
IC1-2
Muting
Q1
Q2
Lch
Rch
MS
IC2
Driver
Q26
Cassette Mechanism
Back Up +14.1v
Regulator
IC5
+8.7v
(Tuner)
Power Switch
+14.1v
Regulator
+6 v
(Controller)
Q24

Fig. 4

## 2.1 PD7003A (PD7003B) CONTROL IC FUNCTIONAL AND PLL SYNTHESIZER TUNER

The PD7003A (PD7003B) is a control IC for PLL synthesizer tuners developed to enable FM reception at 200kHz steps and AM reception at 10kHz steps. When some of the pins of this IC are connected via a diode (switch matrix, mentioned later), a microprocessor is activated in line with the program written beforehand into the IC and scan, seek, memory and other control operations are performed by the 28-pin CMOS LSI. This is combined with the M54522P (IC2) driver IC and M54561P (IC3) digit driver IC for the display LED to configure the PLL synthesizer tuner.

The PLL synthesizer tuner is now described centering on the circuitry operations of the UKE-7100/US, CA (control unit: CWM-124).

Fig. 5 shows the composition of the phase-locked loop in the FM mode. The VCO (CWB-090 local oscillator) frequency, fvco, is amplified by Q4 of CWB-090 up to the level the 1/20 fixed divider μPB552C IC4 can divide it, and the prescaler output signal of IC4 enters pin 10 of PD7003A (PD7003B).

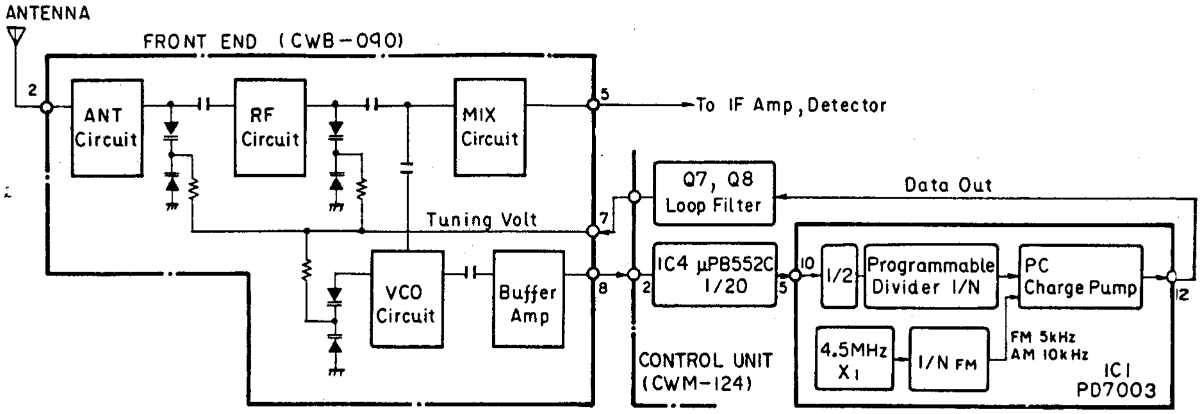


Fig. 5

The frequency is then divided in half again within PD7003A (PD7003B).

The signal is then fed into the programmable divider which is microprocessor-controlled inside PD7003A (PD7003B) and the frequency of the signal is divided by the required ratio. A frequency of 4.5MHz, which serves as the PD7003A (PD7003B) clock pulse (fundamental frequency that drives the microprocessor), is generated by crystal oscillator X1, this is divided down (1/900) to 5kHz to form the reference frequency of the phase comparator whose phase is then digitally compared with that of the frequency-divided signal, and the pulse centering at 5kHz is fed out from pin 12 via the charge pump. The frequency deviation is converted into shifting voltage from a certain DC center voltage. When the frequency is higher than the optimum, positive pulse appear at the output and the more it deviates, the wider pulse-width and vise versa.

This output is then fed into the loop filter (active filter composed of Q7 and Q8), the charging and discharging of C14 and C15 are used, a DC voltage is formed and this is applied to pin 7 of CWB-090 as the tuning voltage. The oscillation frequency of the CWB-090's local oscillator is fixed and the phase-locked loop is then completed. This mode is now locked and the tuning voltage—between approx. 3.0V and 8.8V— is made constant. The ANT, RF and VCO circuits are all controlled, the reception frequency is determined and this is held.

The above can be expressed as follows:

$$(f_{vco}/20)/2/N = f_r = 5\text{kHz}$$
$$f_{vco} = N \times 40 \times f_r$$
$$= N \times 200\text{kHz}$$

This means that every time the programmable divider N counts, the reception frequency changes in a 200kHz step.

In the AM mode the tuner unit (CWE-512) IC6 local oscillator output enters pin 11 of PD7003A (PD7003B) (pin 12 of CWM-124), its frequency is divided down by the programmable divider to $f_r$ = 10kHz, phase comparison is performed as with FM, a pulse with a frequency of 10kHz as the reference is fed out from pin 13, a DC voltage is formed by the Q5 and 6 loop filter, this is supplied to the ANT, RF and OSC block of the AM tuning circuit, the oscillation frequency is fixed and locked. The AM tuning voltage range from 0.9V to 8.8V, with the result that the frequencies vary within a 530kHz to 1620kHz range.

The related formula for the AM mode is.:

$$f_{vco} = N \times f_r$$

the $f_r$ serves as the channel spaces (10kHz) and tuning is performed in 10kHz steps. This completes the description of the PLL section.

## PD7003A (PD7003B) specifications

| | FM | AM |
|---|---|---|
| Reception frequency | 87.9 ~ 107.9MHz | 530 ~ 1620kHz |
| Channel space | 200kHz | 10kHz |
| IF offset | 10.7MHz | 450kHz |
| Phase comparison reference frequency | 5kHz | 10kHz |
| Input frequency | 4.93 ~ 5.93MHz | 980 ~ 2070kHz |
| Prescaler | 1/2 built-in | None |
| Programmable counter frequency-division ratio N | 493 ~ 593 | 98 ~ 207 |
| Number of channels | 101 | 110 |

For instance, when the reception frequency is 87.9MHz, the local oscillator frequency is 98.6MHz, a local oscillator voltage of about 200mVrms (560m$V_{p\text{-}p}$) is fed out from pin 8 of Front End CWB-090, and this enters prescaler IC4. The minimum acceptable level of this IC is 150m$V_{p\text{-}p}$ and frequency division is not performed at lower levels. The uppermost level is 1$V_{p\text{-}p}$. when the above frequency is divided (1/20), the result is 4.93MHz. The frequency is then divided in half again within PD7003A (PD7003B) to become 2.465MHz and this becomes 5kHz when divided down (1/2x493) by the programmable divider (N = 493). This matches the reference frequency and phase comparison becomes possible. After digital phase comparison, the signal enters the loop filter via the charge pump to become a DC voltage.

When the manual UP key is depressed once, D1/K1 are shorted by the diode and when this is sensed by the K1 pin, the up counter inside the IC counts up and one is added to the programmable divider N to make 494, thereby the frequency steps up for one channel on the frequency scale to tune into 88.1MHz.

In the SCAN mode, the up-counter counts up one by one with the D3/K2 matrix, single units are added in succession to the programmable divider N starting at 493 and both the reception frequency and the display are changed. When certain frequencies are received, a squelch signal from the tuner enters the control unit, transistor Q12 is turned on, the D6/K2 matrix is energized and the scanning operation is stopped.

In this case, scanning is automatically started with the PD7003A (PD7003B) microprocessor after 5 seconds. To stop this operation, the SCAN key is depressed again. AM operations are the same as those for FM.

The maximum frequency switchable by a CMOS IC is about 7.2MHz. This means that the FM local oscillator signal frequency cannot be divided directly and that a prescaler is required to divide the frequency down to about 5MHz previously.

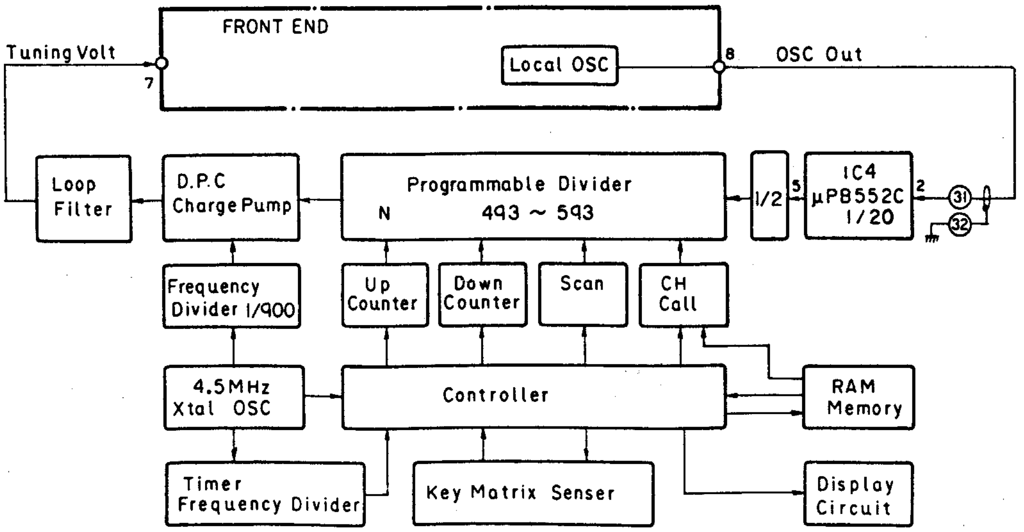

FRONT END
Tuning Volt
7
Local OSC
8
OSC Out
Loop Filter
D.P.C Charge Pump
Programmable Divider
N
493 ~ 593
1/2
5
IC4 μPB552C 1/20
2
㉛
㉜
Frequency Divider 1/900
Up Counter
Down Counter
Scan
CH Call
4.5MHz Xtal OSC
Controller
RAM Memory
Timer Frequency Divider
Key Matrix Senser
Display Circuit

Fig. 6

## 2.2 CHARGE PUMP AND LOOP FILTER

Fig. 7 shows the FM loop filter and charge pump circuit. The phases of the reference frequency and the VCO frequency divided by the prescaler and programmable divider are compared by the digital phase comparator. Since the output pulse cannot be connected directly to the active filter, the PD output is fed out of the complimentary switching circuit (charge pump) which consists of a N-channel MOS FET and a P-channel MOS FET. In the above figure the switching is indicated in the three modes of the charge pump: N OFF, P ON; N ON, P OFF; and N and P both OFF floating. Either a positive or negative output pulse appears above a certain DC voltage.

When the pulse is negative, Q7 is cut off, the Q8 collector voltage rises, C14 and 15 charge and the tuning voltage increases. When the pulse is positive, Q7 turns ON as does Q8, the C14 and 15 discharge through Q8 and the tuning voltage decreases. The filter is configured as an active filter with the C14 + C15 and R13 time constant. The repeat pulse near the reference frequency is grounded by the R14 and C16 single-stage filter and turned into a perfect DC tuning voltage.

The FM reference frequency is 5kHz, that for AM is 10kHz. The time constant of the active filter differ in each case and they are related to the PLL lock-up time.

Even in the phase-locked loop mode, the PD output pulses are such that the above three modes are repeated and the lock mode is maintained.

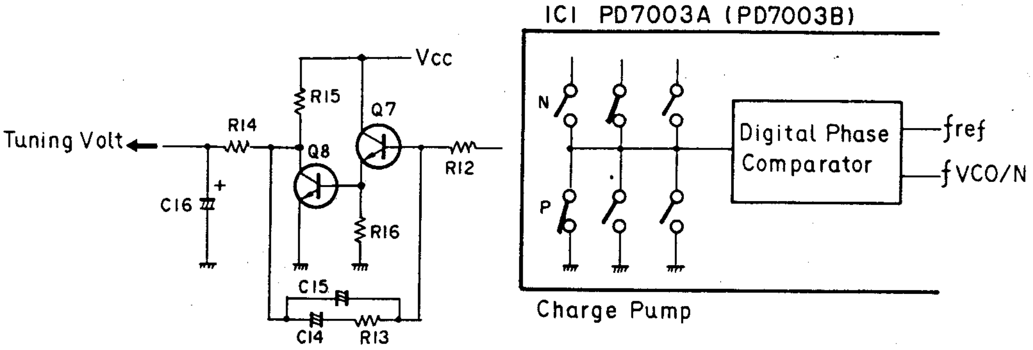


Fig. 7

## 2.3 DISPLAY CONTROL SECTION

A dynamic lighting system is adopted for the PD7003A (PD7003B) display with the LEDs being lighted in syncronization with the D1 through D6 (PD7003A (PD7003B) pin 28 through pin 23) digit signals. A sweep is performed in a period of about 3 msec. The digit signals, used to indicate the digits (D1=1st digit; D2: 2nd digit), are fed out from PD7003A (PD7003B). However, this model does not use D6 for displaying. The LEDs employed for displaying the numbers are composed of 7 segments and, with the addition of the dot [.], the 8-segment output is fed out from the IC, the required segments of the LED for lighting are synchronized with the digit output and segment output and turned on, in each case at a period speed of 3 msec, with a sweep being performed from the highest digit to the lowest digit.

The above process is explained using Fig. 8. D1 through D6 are active at "L" and S1 through S8 are active at "H". If the description is simplified and confined to one LED, then, as in Fig. 8, the LED lights only when the digit output is "L" and the segment output is "H".

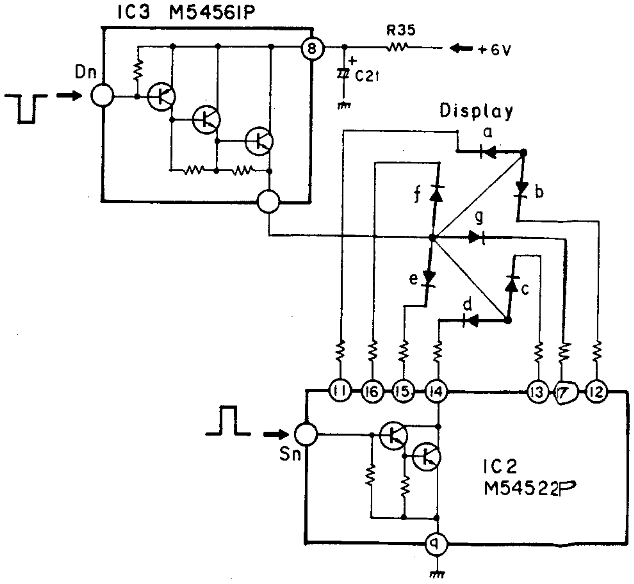


Fig. 8

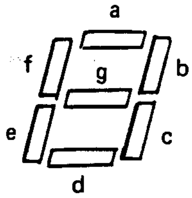


Fig. 9

More specifically in the above figure when digit output Dn (IC output) is "L", the IC3 darlington transistors turn ON and when the segment output Sn is "H", IC2 darlington transistors turn ON, segment 1 of the LED lights. For instance, when the first digit output goes to "L", and segments (b) and (c) go to "H", "8" is indicated and lighting is repeated as in Fig. 10 at a speed of 3 msec.

LED lights when digit output and segment output are synchronized. A signal of 3 msec. sweeping period is distributed to digit outputs by turns.

Much fewer IC pins are used than with a DC voltage. However, the dynamic signal which causes the lighting is a 5V$_{p\text{-}p}$ square wave and so care must be taken lest it should not interfer RF and power supply curcuit.

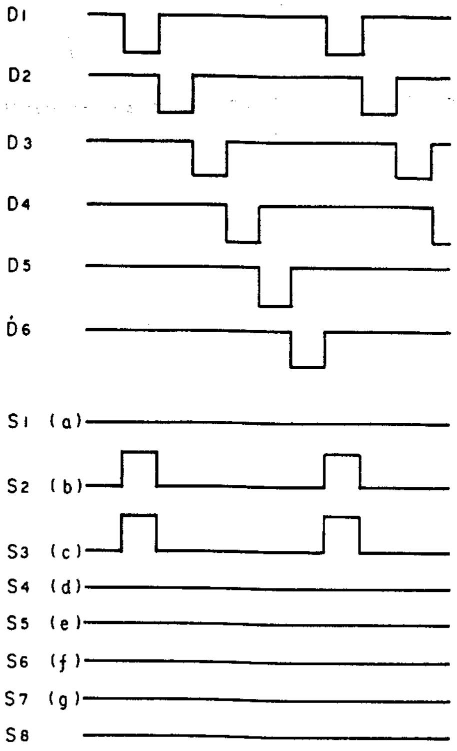


Fig. 10

## 2.4 μPD7003A (PD7003B)

| TERMINAL NUMBER | SYMBOL | FUNCTION |
|---|---|---|
| 1 to 8 | S1 to S8 | display segment drive output |
| 9 | MUTE | muting output during tuning operation |
| 10 | FM IN | FM station input |
| 11 | AM IN | AM station input |
| 12 | FM DO | FM phase comparison output |
| 13 | AM DO | AM phase comparison output |
| 14 | $V_{DD}$ | power supply terminal +5V |
| 15 | $V_{SS}$ | power supply terminal common ground |
| 16 and 17 | Q IN and Q OUT | 4.5 MHz crystal oscillator circuit input and output |
| 18 | CS | chip selector input CS="L" also, key input inhibit using OPEN and tuner operation using CS="H" |
| 19 to 22 | K1 to K4 | key sensing input |
| 23 to 28 | D1 to D6 | display digit drive output/key scan output |

## 2.5 SWITCH MATRIX

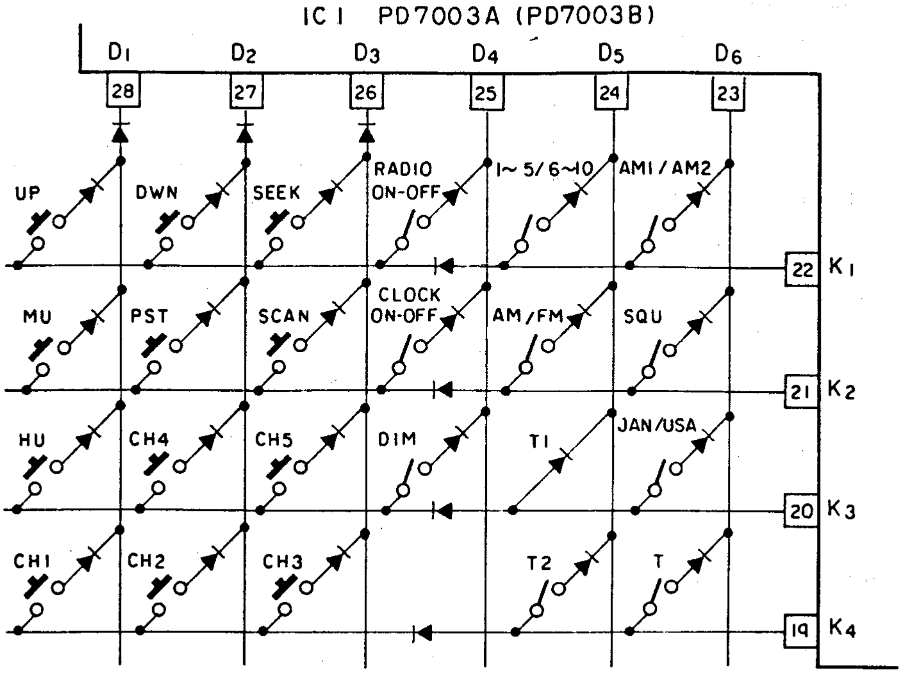

IC I PD7003A (PD7003B)
D1
D2
D3
D4
D5
D6
28
27
26
25
24
23
UP
DWN
SEEK
RADIO ON-OFF
1~5/6~10
AM1/AM2
MU
PST
SCAN
CLOCK ON-OFF
AM/FM
SQU
HU
CH4
CH5
DIM
T1
JAN/USA
CH1
CH2
CH3
T2
T
22
K1
21
K2
20
K3
19
K4

Fig. 11

All the functions of the UKE-7100/US, CA including scanning, memory and band (display) selection are controlled by the PD7003A (PD7003B) by sensing its D1 through D6 display signals at pin 22 through pin 19 or key sensing inputs K1 through K4.

For instance, when Q15 of the Q15/Q14 transistor switches of CWM-124 turns ON, D5 and K1 are connected and memory station addresses 1 through 5 are selected. When Q15 turns OFF, stations 6 through 10 are selected.

When changing over to AM, for example, D5 and K2 are not connected unless Q14 is turned ON. Q13 connects D4 and K1 and unless this turns ON, the radio does not come ON and the frequency is not displayed. Memory and station call is selected by the moment switches (electroconductive rubber) in the switch unit (CWS-123), while UP/DOWN selection is performed by a mechanical switch. The entire matrix is crossed, so to prevent malfunctioning when switches are depressed simultaneously, diodes D7 ~ D10, D14 ~ D19 are inserted so that one digit signal output does not flow into another.

The last Q12 squelch transistor switch (for stopping the scanning operations) is inserted across D6/K2, and during FM SQ, the squelch input is at "H" (about 2V) when there is no signal from CWE-512 at pin (3)of CWM-124 and at "L" when there is a signal at the antenna input. At "L" Q3 (tuner unit) is cut off, current flows through R30 from the power supply, Q12 (control unit) turns ON, the D6 digit signal enters K2 and when this is sensed, the scanning operations are terminated.

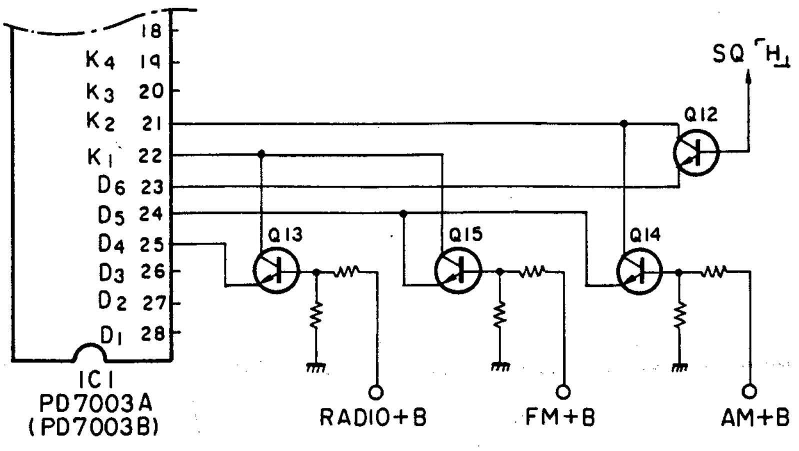

18
K4 19
K3 20
K2 21
K1 22
D6 23
D5 24
D4 25
D3 26
D2 27
D1 28
IC1
PD7003A
(PD7003B)
SQ "H"
Q12
Q13
Q15
Q14
RADIO+B
FM+B
AM+B

Fig. 12

## 2.6 DESCRIPTION OF OTHER CIRCUITS

### • Voltage doubler circuit (voltage multiplier)

In order to improve the voltage drop characteristics of the PLL synthesizer tuner, a tuning voltage is produced. In order to keep the supply voltage of the loop filter constant even when mains voltage drop, the transistor is switched with the digit signal, the signal from the transistor is rectified and superimposed over the 13.8V power to provide a 25V voltage, an 11V stabilized voltage is yielded by the voltage stabilizer and this is used as the supply voltage of the loop filter.

Here, supply current through R33 (15kΩ) is switched on and off by the diode OR logic circuit consisting of D2, D4 and D6 of PD7003A (PD7003B), switches Q1 ~ Q3 ON and OFF. The output is then rectified and added onto 13.8V DC elevating the voltage up to 25V. Then, 11V stabilized current is available even when the line voltage drops down to 10V.

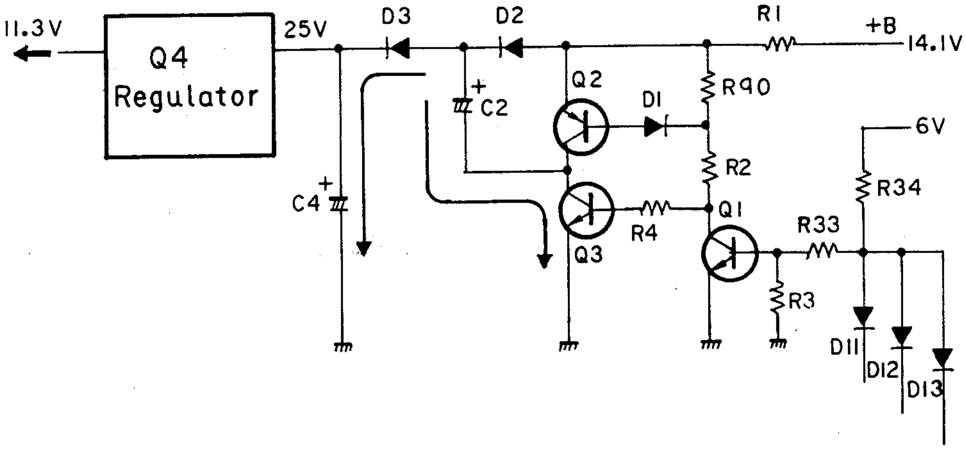


Fig. 13

The voltage doubler circuit is now descrived. In the above figure (Fig. 13) the three D11, D12 and D13 diodes are connected to the PD7003A (PD7003B) D2, D4 and D6 pins, and with the digit signal timing an "OR" logic is formed by the diodes for the H/L swing of the IC's supply voltage, the Q1 ON/OFF duty ratio is set to 50% and the Q2 pnp and Q3 npn transistors are switched ON and OFF with the collector voltage.

When the Q1 collector is at "H" (Q1 is cut off), Q2 turns OFF and Q3 turns ON, C2 is charged through D2 and Q3 to about 13.1V [13.8V ~ 0.7V (D2$V_F$)]. When Q1 turns ON, the collector voltage drops, Q3 is cut OFF, Q2 turns ON and the Q3 collector voltage rises to about 13.6V (with $V_{CE}$ set = 0.2V). When this happens, the + side of C2 is set ot 26.7V with the Q3 collector voltage added to the previous charge amount. At this time D2 is cut off, D3 turns ON, C4 is charged with (26.7 – $V_F$) V and by a repetition of this operation, a voltage of about 25V is produced.

## 2.7 DESCRIPTION OF TUNER SECTION

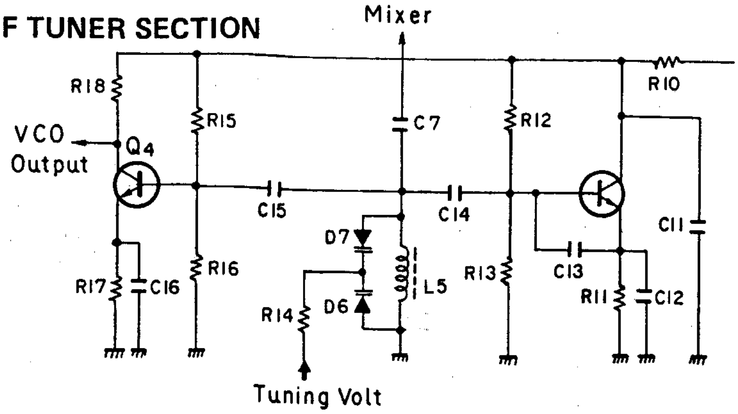


Fig. 14

### • FM section

The output signal generated by the local oscillator circuit enters the control unit CWM-124 via the buffer amplifier Q4.

The tuning voltage (DC) generated in the control unit is fed to the pin 7 of the CWB-090, and applied to the variable capacitance diodes 1SV101 in the ANT, RF and local oscillator circuit.

The local oscillator circuit is a normal modified clapp type, and generates a signal at the reception frequency + 10.7MHz. A part of the oscillator output is injected to the base of the mixer transistor Q2, and 10.7MHz difference signal is taken out at the T1 secondary.

This signal passes through the ceramic filter CF1, CF2, and is amplifier by 20dB by IF amp IC M5215L. It then passes through CF3, and enters pin 1 of the quadrature detector IC LA1140.

Pins (4), (10): GNP

Pin (5): The noise level is determined under zero-signal conditions by the resistor across this pin and ground. It is set to 47kΩ, approx. −30dB. (zero-signal noise level ARC for 100% modulated signals).

Pin (6) MUTE IN:
When this pin is grounded, there is no soft muting effect, the noise level increases and −3dB limiting sensitivity increases.

Pin (7): Quadrature V reference; center meter between pins (7) and (13).

Pin (9): Limiter output

Pins (11), (13): Quadrature detection stage

Pin (14): Mute signal output

Under no ANT input or detuned condition, a DC Mute output of 2 to 3V is fed out to this through OR circuit detecting the input level and S curve. ARC soft-muting is made with the voltage applied to pin 6.

This voltage becomes 0V with the ANT input higher than a certain level, and it is utilized as a signal for scan stop.

Pin (15): Signal strength indication output

A DC voltage in proportion to IF signal level or antenna input level entering pin (1) of IC LA1140 is obtained. This voltage is 0V under zero-signal conditions, about 5V at an ANT input level of 60dB and it changes very little above this level. The voltage adjusted by the VR4 using this voltage is applied to pins (7) and (8) of LA3375P. Pin (7) is the stereo demodulated output high-cut control pin, and when voltage decreases, the high-cut amount increases. Pin (8) is the separation control pin, and when the voltage decreases, the separation deteriorates.

Pin (16): AGC output

When there is no LA1140 input signal, the voltage is 4V and when the input increases, the voltage decreases gradually to 0V.

IC4 LA2110 is an FM noise canceler IC in a 16-pin single end package. The FM detection output enters pin (7) while a low-pass filter is configured by the RC elements across pins (5)and (6). This filter circuit functions to allow signals with a frequency of less than 100kHz to pass through and also to delay the signals.

The RC elements across pins (6) and (9) configure an active high-pass filter which takes out noise components with a frequency of over 100kHz. the IC's signal path gate circuit is switched ON and OFF by these noise components which cuts out the signals for a short period of time only when there is noise present. The above-mentioned low-pass filter is used since it is necessary to delay the signal for the time until noise detection is made.

The IC5 LA3375P FM stereo demodulator functions so that when the stereo composite signal accompanied by the 19kHz signal enters, the VCO inside the IC is locked onto the 19kHz frequency, a signal with double the frequency (38kHz) is created, the 38kHz carrier is injected into the carrier-suppressed double side band (CSDSB) stereo signal, this is detected as AM, the stereo (L − R) sub channel is matrixed with the (L + R) main channel and L and R signals are taken out by;

$$(L + R) + (L - R) = 2L$$

$$(L + R) - (L - R) = 2R$$

This IC also cintains a circuit that attenuates the sub channel (L − R) with the voltage applied to pin 7 of the IC. The voltage of pin 15 of FM IF IC LA1140 is applied to pin 7 of LA3375P and varies in proportion to ANT input. VR4 is to be adjusted to obtain L→R and R→L separation of 5dB when ANT input is 20dB (μV). When the level is increased from this ANT input level, the separation is continuously improved and a separation of about 40dB is produced at a level of 60dB (μV).

The signal meter output is applied to pin (8) and when the audio components of the stereo demodulated output low, a high-cut circuit works and a drop of about 3dB is marked from the deemphasis at 10kHz with an ANT input level of 20dB (μV).

- **AM section**

In terms of constants the AM circuitry is virtually the same as that of the conventional voltage synthesizer tuner. The ANT input is received aperiodically by the Q6 booster FET, and the 50Hz power supply induction is cut out by the capacitor in IB4 and L7 high-pass filter.

The local oscillator circuit is powered by the oscillating circuit of IC6 and the resonating circuit of D15-3 and C54, C55, C57 and L11. The output of the local oscillator is amplified by the buffer of IC6 and output from pin 8 of IC6. This signal then passes through pin 12 of CWM-124 and goes to pin 11 of PD7003A (PD7003B) where the signal becomes DC at loop filters Q5 and Q6 according to the AM PD output from pin 13. This tuning voltage is applied to the AM variable capacitance D15-1, D15-2 and D15-3 of CWE-512, forms a loop and is locked. The oscillation voltage of the local oscillator circuit is sent to the MIX circuit of IC6 where it is mixed with the input signal and converted to a 450kHz IF frequency. The signal then passes through a 4-element ladder ceramic filter (CF4) that has excellent selectivity, is amplified by the IF circuit of IC6, undergoes wave detection and becomes AM output.

## 2.8 LEVEL DIAGRAM (UKE-7100)

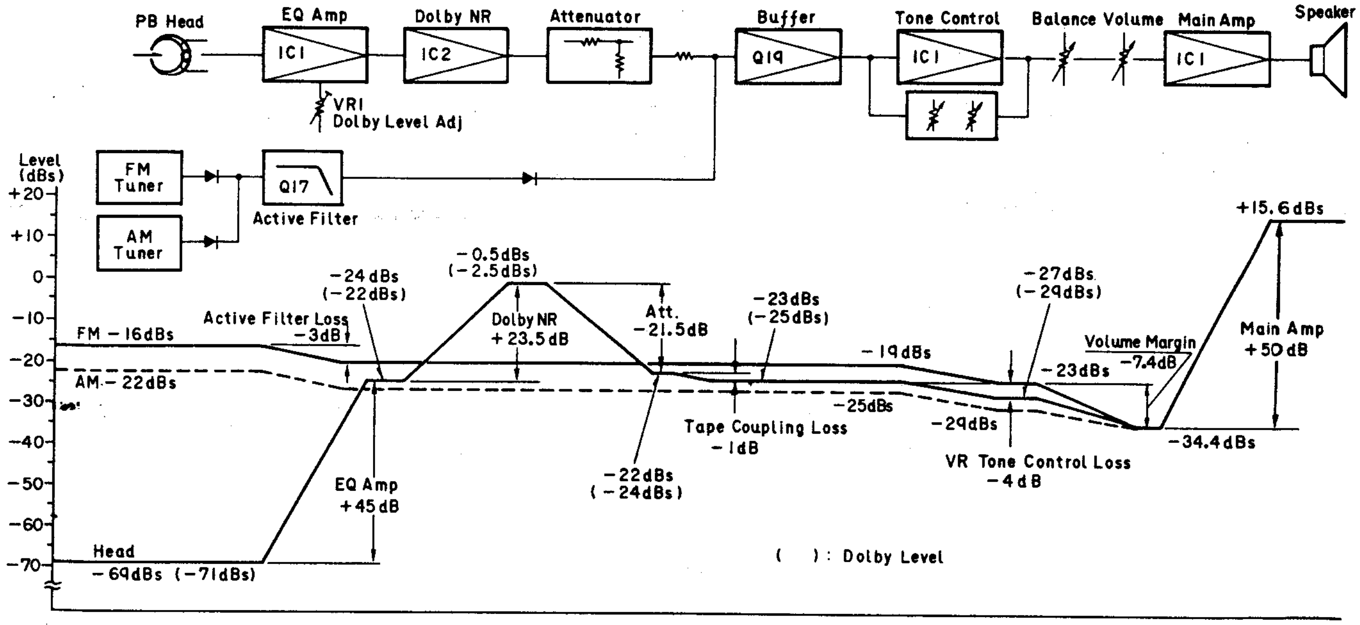

PB Head
EQ Amp
IC1
Dolby NR
IC2
Attenuator
Buffer
Q19
Tone Control
IC1
Balance Volume
Main Amp
IC1
Speaker
VR1
Dolby Level Adj
Level (dBs)
FM Tuner
AM Tuner
Q17
Active Filter
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
+15.6dBs
-0.5dBs (-2.5dBs)
-24dBs (-22dBs)
-27dBs (-29dBs)
Active Filter Loss -3dB
Att. -21.5dB
-23dBs (-25dBs)
Dolby NR +23.5dB
FM - 16dBs
Main Amp +50dB
-19dBs
Volume Margin -7.4dB
-23dBs
AM - 22dBs
-25dBs
-29dBs
Tape Coupling Loss -1dB
-34.4dBs
VR Tone Control Loss -4dB
EQ Amp +45dB
-22dBs (-24dBs)
Head
-69dBs (-71dBs)
( ) : Dolby Level

Fig. 15

## 2.9 LEVEL DIAGRAM (UKE-3100)

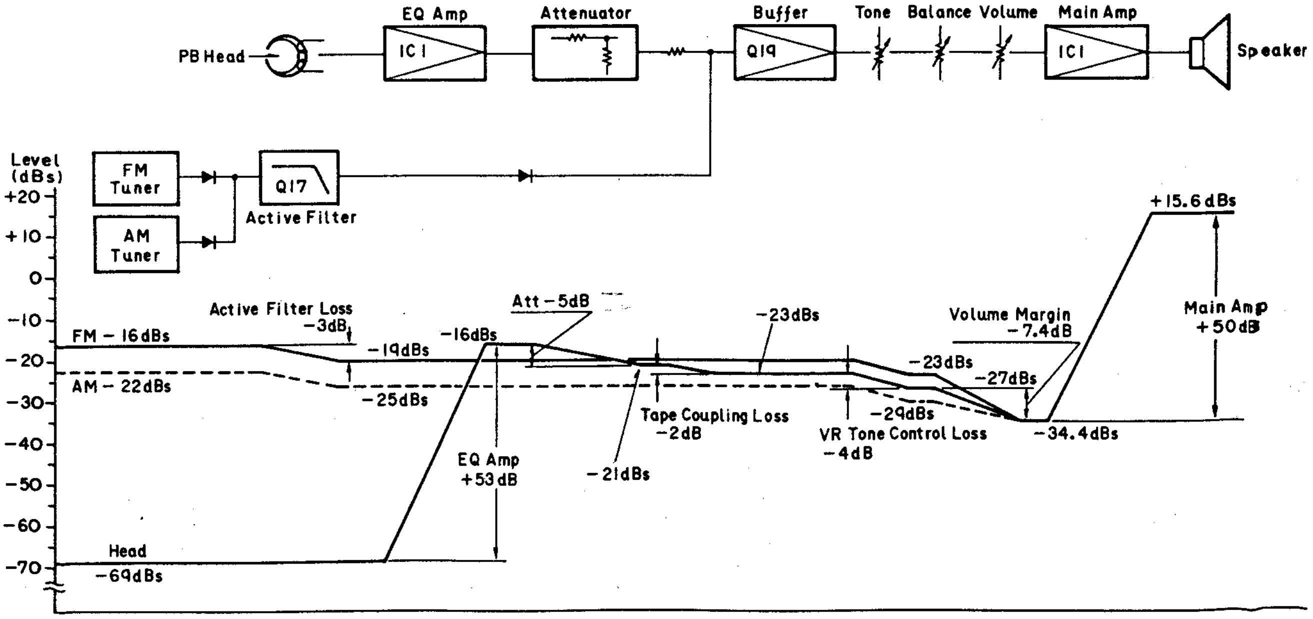

EQ Amp
Attenuator
Buffer
Tone
Balance
Volume
Main Amp
PB Head
IC1
Q19
IC1
Speaker
Level (dBs)
FM Tuner
AM Tuner
Q17
Active Filter
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
+15.6dBs
Active Filter Loss -3dB
Att -5dB
-23dBs
Volume Margin -7.4dB
Main Amp +50dB
FM - 16dBs
-16dBs
-19dBs
-23dBs
-27dBs
AM - 22dBs
-25dBs
Tape Coupling Loss -2dB
-29dBs
VR Tone Control Loss -4dB
-34.4dBs
EQ Amp +53dB
-21dBs
Head
-69dBs

Fig. 16

# 3. ADJUSTMENT

## 3.1 DOLBY NR LEVEL ADJUSTMENT (UKE-7100)

- **Connection Diagram**

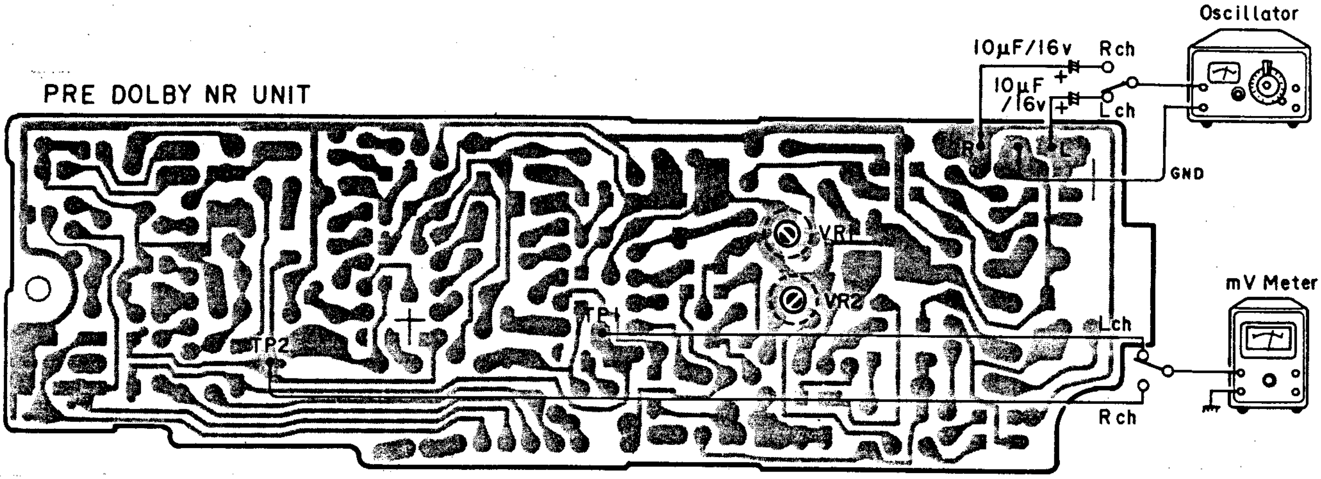

Oscillator
10μF/16v
Rch
10μF/16v
Lch
PRE DOLBY NR UNIT
R
L
GND
VR1
VR2
TP1
TP2
mV Meter
Lch
Rch

Fig. 17

- **To Adjust**

1. Set the Dolby NR switch to OFF.
2. Playback the Dolby level calibration tape (400Hz, 200nwb/m) and adjust VR1 (L ch), VR2 (R ch) so that the mV meter shows 580mV (−2.5dBs).

## 3.2 DOLBY NR PERFORMANCE CONFIRMATION (UKE-7100)

- **Connection Diagram (Shown in Fig. 17)**
- **To Check**

1. Turn the Dolby NR switch OFF and playback an unrecorded (blank) tape.
2. Apply a 5kHz signal from the oscillator and adjust the oscillator output level so the mV meter shows −24.9dBs (44 mV).
3. Turn the Dolby NR switch ON the confirm that the mV meter shows −32.9dBs (17.5mV) ±2dB.

## 3.3 CRYSTAL OSCILLATOR FREQUENCY ADJUSTMENT (UKE-7100)

- **Connection Diagram**

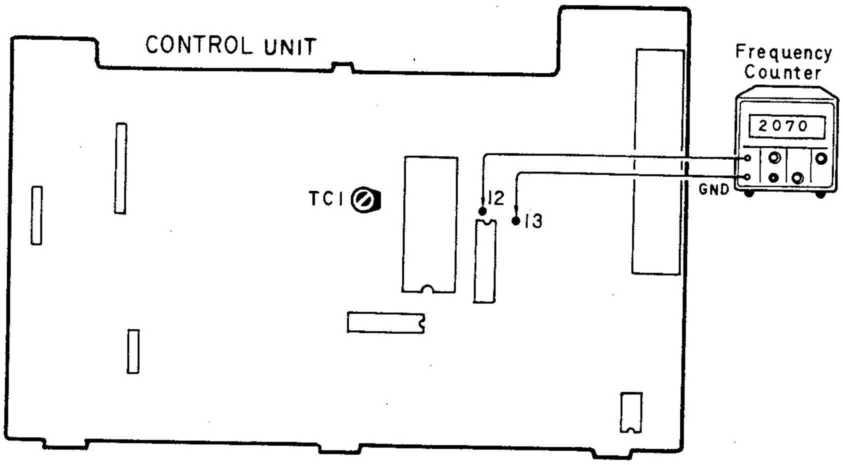

CONTROL UNIT
Frequency Counter
2070
GND
TC1
12
13

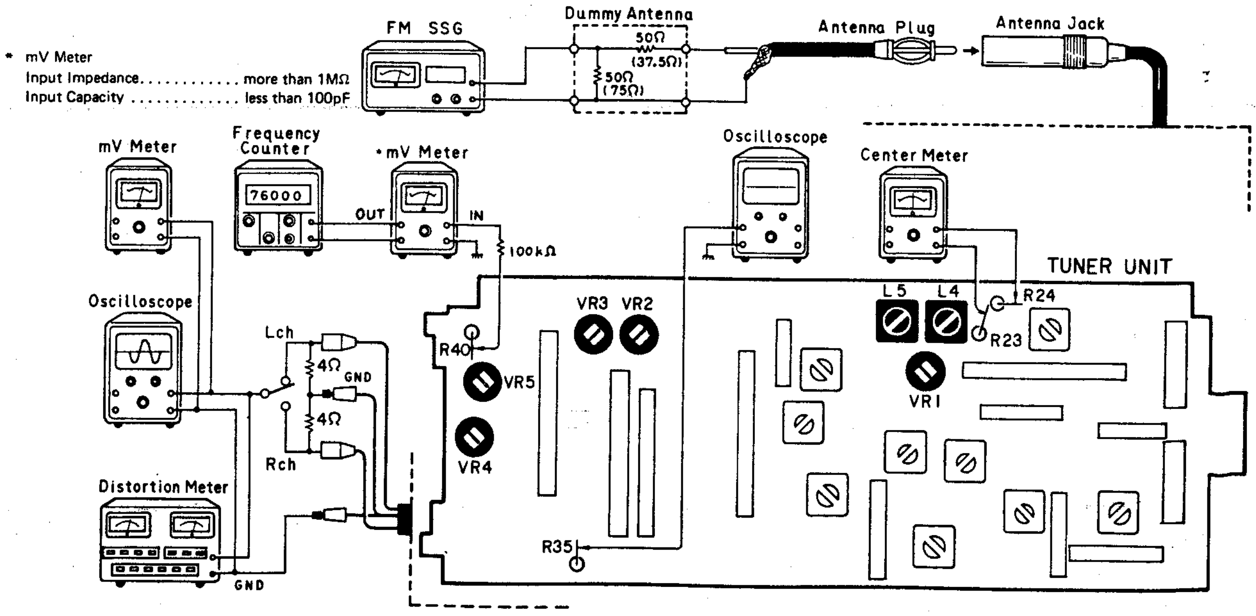
Fig. 18

- **To Adjust**

1. Set the Band switch to AM.
2. Set the reception frequency to 1,620kHz.
3. Adjust TC1 to make the frequency counter show 2,070kHz ± 40Hz.

## 3.4 FM IF ADJUSTMENT (UKE-7100)

- **Connection Diagram**


FM SSG
Dummy Antenna
50Ω
(37.5Ω)
50Ω
(75Ω)
Antenna Plug
Antenna Jack
mV Meter
Frequency Counter
76000
OUT
*mV Meter
IN
100kΩ
Oscilloscope
Center Meter
TUNER UNIT
Oscilloscope
Lch
4Ω
GND
4Ω
Rch
Distortion Meter
GND
VR3
VR2
R40
VR5
VR4
R35
L5
L4
R24
R23
VR1

* mV Meter
Input Impedance............ more than 1MΩ
Input Capacity ............. less than 100pF

Fig. 19

- **To Adjust**

1. Set the Mono/Auto switch to MONO.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG and tune 98.1MHz.
3. Adjust L4 to make the center meter show 0.
4. Adjust L5 to achieve minimum distortion.

### 3.5 FM TRACKING ADJUSTMENT (UKE-7100)

- **Connection Diagram**

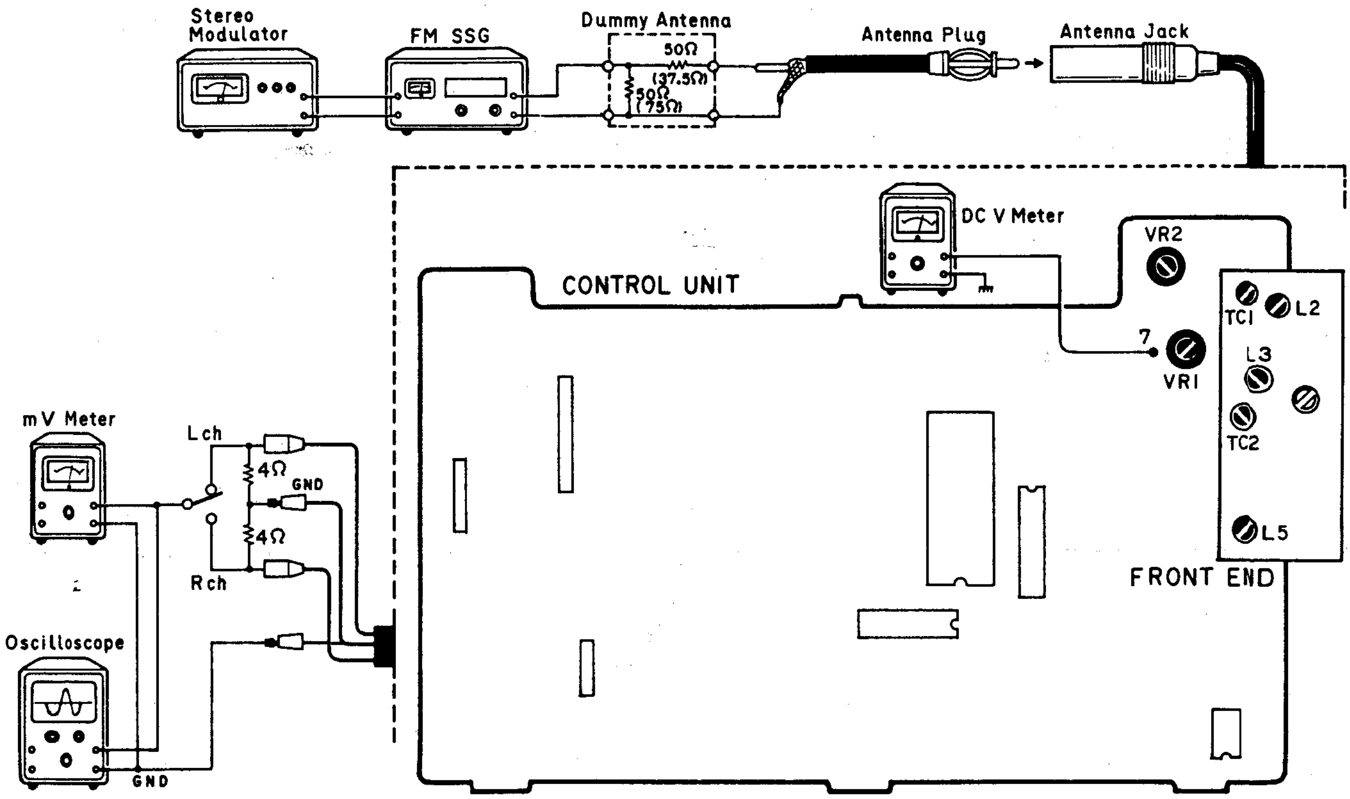

Stereo Modulator
FM SSG
Dummy Antenna
50Ω
(37.5Ω)
50Ω
(75Ω)
Antenna Plug
Antenna Jack
DC V Meter
VR2
CONTROL UNIT
TC1
L2
7
VR1
L3
TC2
L5
FRONT END
mV Meter
Lch
4Ω
GND
4Ω
Rch
Oscilloscope
GND

Fig. 20

- **To Adjust**

| Frequency of FM SSG | Displayed Frequency | Adjusting point | DC V meter | mV meter |
|---|---|---|---|---|
| 1. | 107.9 MHz | L5 | 8.8 ± 0.3V | |
| 2. | 87.9 MHz | | 2.9 ± 0.5V check | |
| 3. 90.1 MHz (400 Hz, 100% modulation) output level 5 ~ 10 dB (μV) | 90.1 MHz | L2, L3 | | Maximum output |
| 4. 106.1 MHz (400 Hz, 100% modulation) output level 5 ~ 10 dB (μV) | 106.1 MHz | TC1, TC2 | | Maximum output |
| 5. Repeat steps (3) and (4) alternately so that mV meter indicates the maximum output. | | | | |

### 3.6 FM MPX and ARC ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 19)**
- **To Adjust**

1. Set the Mono/Auto switch to AUTO. VR4 is turned in a clockwise direction.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG. Tune into a frequency of 98.1MHz and memorize the output.
3. Set the FM SSG output level to 15dB (μV) and adjust VR1 so that a reduction of 3dB is produced from the output level in step 2.
4. Adjust VR5 to make the frequency counter show 76kHz ± 120Hz by applying an unmodulated signal of 98.1MHz and 60dB (μV) from the FM SSG.
5. Adjust VR3 to reduce the oscilloscope wave to the minimum using only the modulation for the pilot signal (10%) and 60dB (μV).
6. Adjust VR2 to obtain the best separation by applying a stereo signal (1kHz, 100% modulation).
7. Adjust VR4 to obtain a 5dB separation by making the input signal 20dB (μV).

### 3.7 FM SCAN SENSITIVITY ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 20)**
- **To Adjust**

1. Set the Local.s switch to OFF.
2. Apply a signal of 98.1MHz, 400Hz 30% modulation and 29dB ($\mu$V) from the FM SSG, scan and adjust VR2 to make the scan stop at 98.1MHz.
3. Set the Local.s switch to ON and make the input signal 50dB ($\mu$V).
4. Scan and adjust VR1 to make the scan stop at 98.1MHz.
5. After adjustment, confirm that the scan has stopped within ±4dB ($\mu$V). (Note: Scans should be performed 1MHz apart.)

### 3.8 AM IF ADJUSTMENT (UKE-7100)

- **Connection Diagram**

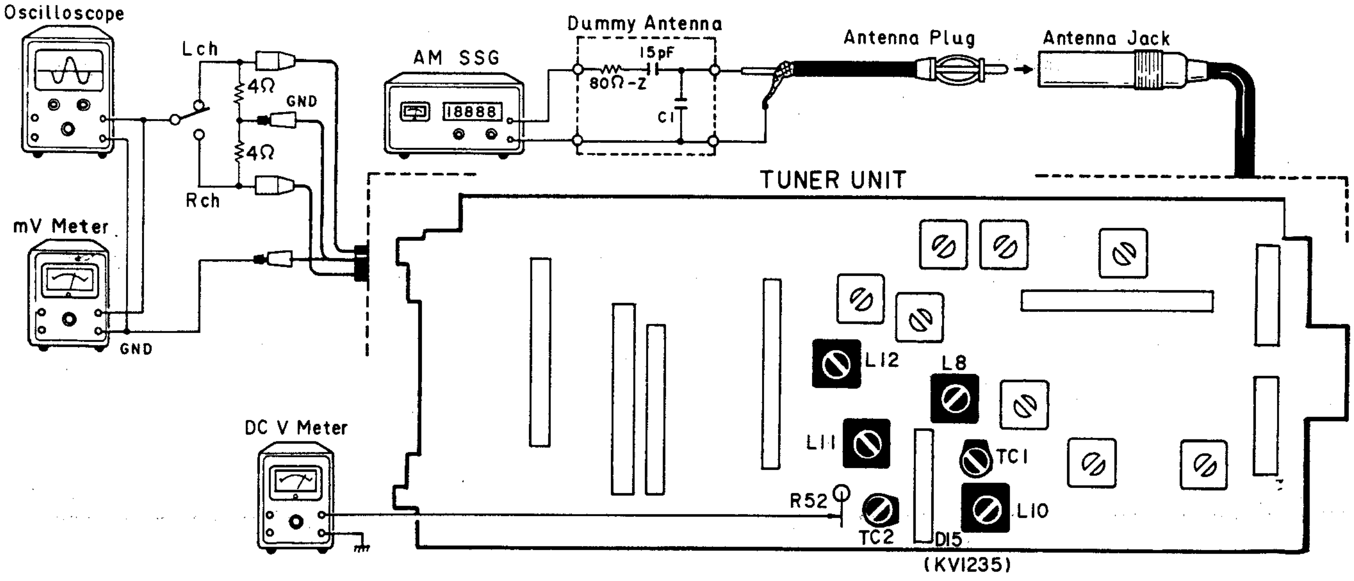

Oscilloscope
Lch
4Ω
GND
4Ω
Rch
mV Meter
GND
AM SSG
18888
Dummy Antenna
15pF
80Ω-Z
C1
Antenna Plug
Antenna Jack
TUNER UNIT
L12
L8
L11
TC1
R52
TC2
D15
(KV1235)
L10
DC V Meter

Fig. 21

**NOTICE:**

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of S.S.G.

- **To Adjust**

1. Set the reception frequency to 1,000kHz.
2. Supply a 450kHz signal (400Hz, 30% modulation) from the SSG.
3. Vary the SSG output level to between 80 and 120dB ($\mu$V) and, checking the output on the mV meter and oscilloscope, adjust L12 to bring the output to its maximum. Reduce the SSG output to the minimum level at which the waveforms can be monitored.

### 3.9 AM TRACKING ADJUSTMENT (UKE-7100)

- **Connection Diagram (Shown in Fig. 21)**

- **To Adjust**

During tuning voltage adjustment of 530kHz, pay attention to the voltage difference using the color mark of D15 (KV1235).

| Frequency of AM SSG | Displayed Frequency | Adjusting Point | Color of D15 | DC V Meter | mV Meter |
|---|---|---|---|---|---|
| 1. | 530 kHz | L11 | Pink | 0.9 ± 0.1V | |
| | | | Colorless | 1.0 ± 0.1V | |
| | | | Blue | 1.1 ± 0.1V | |
| | | | White | 1.2 ± 0.1V | |
| 2. | 1,620 kHz | For Confirmation Only | Less than 9V | | |
| 3. 600 kHz (400 Hz, 30% modulation) output level 30dB (μV) | 600 kHz | L8, L10 | | | Maximum output |
| 4. 1,400kHz(400Hz,30% modulation) output level 30dB (μV) | 1,400 kHz | TC1, TC2 | | | Maximum output |
| 5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output. | | | | | |

### 3.10 AM SCAN SENSITIVITY CONFIRMATION (UKE-7100)

- **Connection Diagram (Shown in Fig. 21)**
- **To Check**

1. Set the Local.s switch to OFF.
2. Apply a signal of 1,000kHz, 400Hz 30% modulation and 27 ± 10 dB (μV) from the AM SSG, scan and confirm that scan stop at 1,000kHz.
3. Set the Local.s switch to ON.
4. Set the input signal from the AM SSG to $45^{+15dB}_{-10dB}$ (μV), scan and confirm that scan stop at 1,000kHz.

### 3.11 CRYSTAL OSCILLATOR FREQUENCY CONFIRMATION (UKE-3100)

- **Connection Diagram**

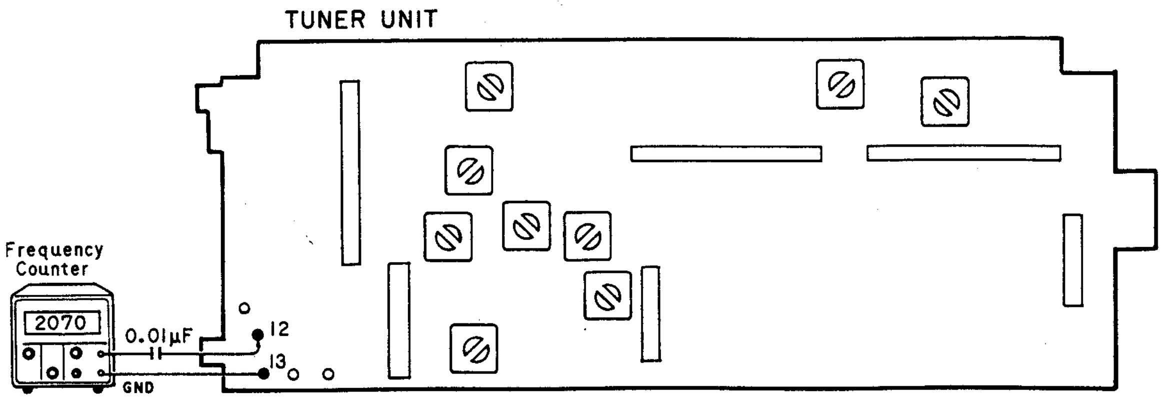


Fig. 22

- **To Check**

1. Set the Band switch to AM.
2. Set the reception frequency to 1,620kHz.
3. Confirm that the frequency at pin 12 of the Tuner Unit is 2,070kHz ± 50kHz.

### 3.12 FM IF ADJUSTMENT (UKE-3100)

- **Connection Diagram**

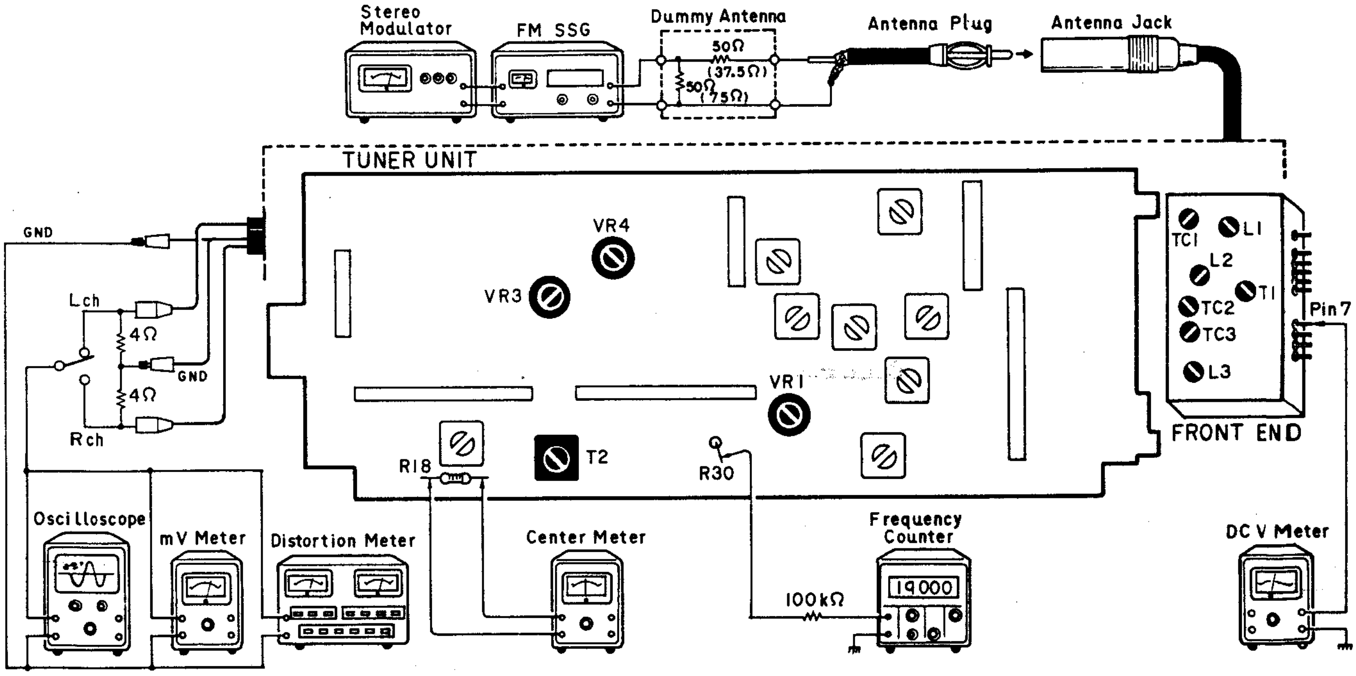

Stereo Modulator
FM SSG
Dummy Antenna
50Ω
(37.5Ω)
50Ω
(75Ω)
Antenna Plug
Antenna Jack
TUNER UNIT
GND
Lch
4Ω
GND
4Ω
Rch
VR4
VR3
VR1
T2
R18
R30
TC1
L1
L2
T1
TC2
TC3
L3
Pin7
FRONT END
Oscilloscope
mV Meter
Distortion Meter
Center Meter
Frequency Counter
19000
100kΩ
DC V Meter

Fig. 23

- **To Adjust**

1. Set the Mono/Auto switch to MONO.
2. Apply a signal of 98.1MHz, 400Hz 100% modulation and 60dB (μV) from the FM SSG and tune 98.1MHz.
3. Adjust T2 to make the center meter show 0.
4. Adjust T1 (Front End) to achieve minimum distortion.

## 3.13 FM TRACKING ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**

- **To Adjust**

| Frequency of FM SSG | Displayed Frequency | Adjusting Point | DC V Meter | mV Meter |
|---|---|---|---|---|
| 1. | 87.9 MHz | L3 | 2.9 ± 0.5V | |
| 2. | 107.9 MHz | TC3 | 8.8 ± 0.3V | |
| 3. 90.1 MHz (400 Hz, 100% modulation) output level 10 dB ($\mu$V) | 90.1 MHz | L1, L2 | | Maximum output |
| 4. 106.1 MHz (400Hz, 100% modulation) output level 10 dB ($\mu$V) | 106.1 MHz | TC1, TC2 | | Maximum output |
| 5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output. | | | | |

## 3.14 FM MPX ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**
- **To Adjust**

1. Set the Mono/Auto switch to AUTO.
2. Adjust VR1 to make the frequency counter show 19kHz ± 30Hz by applying an unmodulated signal of 98.1MHz and 60dB ($\mu$V) from the FM SSG.

## 3.15 FM SCAN SENSITIVITY ADJUSTMENT (UKE-3100)

- **Connection Diagram (Shown in Fig. 23)**
- **To Adjust**

1. Set the Local.s switch to OFF.
2. Apply a signal of 98.1MHz, 400Hz 30% modulation and 25 dB ($\mu$V) from the FM SSG, scan and adjust VR3 to make the scan stop at 98.1MHz.
3. Set the input signal from the FM SSG to 14 dB ($\mu$V), scan and confirm that scan does not stop at 98.1MHz.
4. Set the input signal from the FM SSG to 25 ± 10dB ($\mu$V), scan and cofirm that scan stop at 98.1MHz.
5. Set the Local.s switch to ON and make the input signal 50 dB ($\mu$V).
6. Scan and adjust VR4 so the scan stop at 98.1MHz.
7. Set the input signal from the FM SSG to 39 dB ($\mu$V), scan and confirm that scan does not stop at 98.1MHz.
8. Set the input signal from the FM SSG to 50 ± 10dB ($\mu$V), scan and confirm that scan stop at 98.1MHz.

## 3.16 AM IF ADJUSTMENT (UKE-3100)

### • Connection Diagram

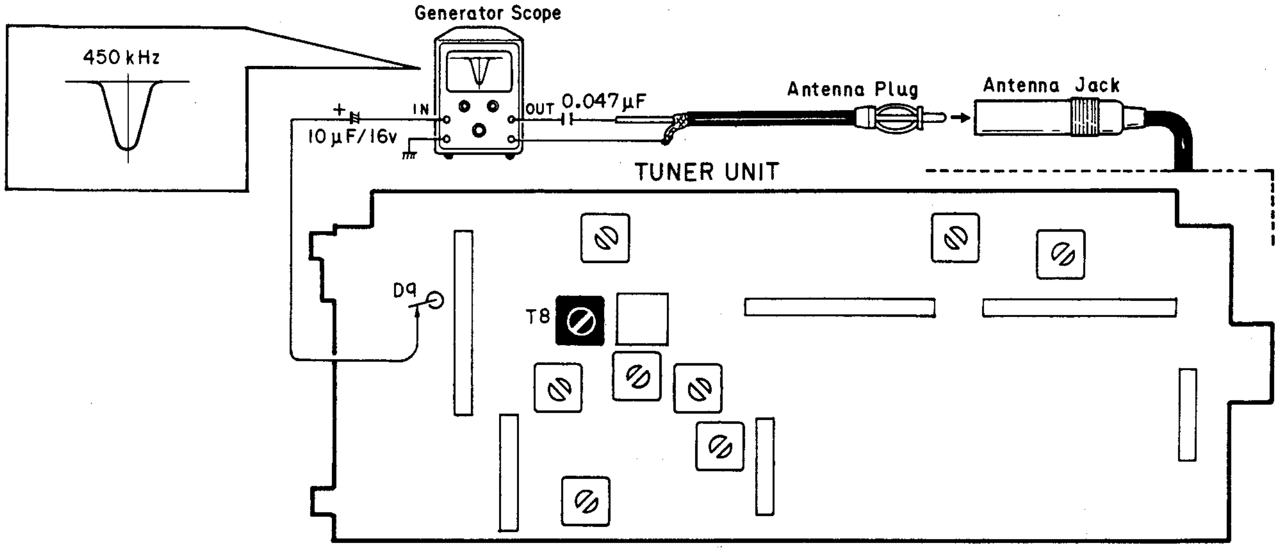

Generator Scope
450 kHz
IN
OUT
0.047µF
+
10µF/16v
Antenna Plug
Antenna Jack
TUNER UNIT
D9
T8

Fig. 24

### • To Adjust

1. Set the input the generator scope to the range within which the U curve can be verified and move the coil of T8 until the U curve is adjusted to its maximum amplitude and optimum symmetry.

## 3.17 AM TRACKING ADJUSTMENT (UKE-3100)

- **Connection Diagram**

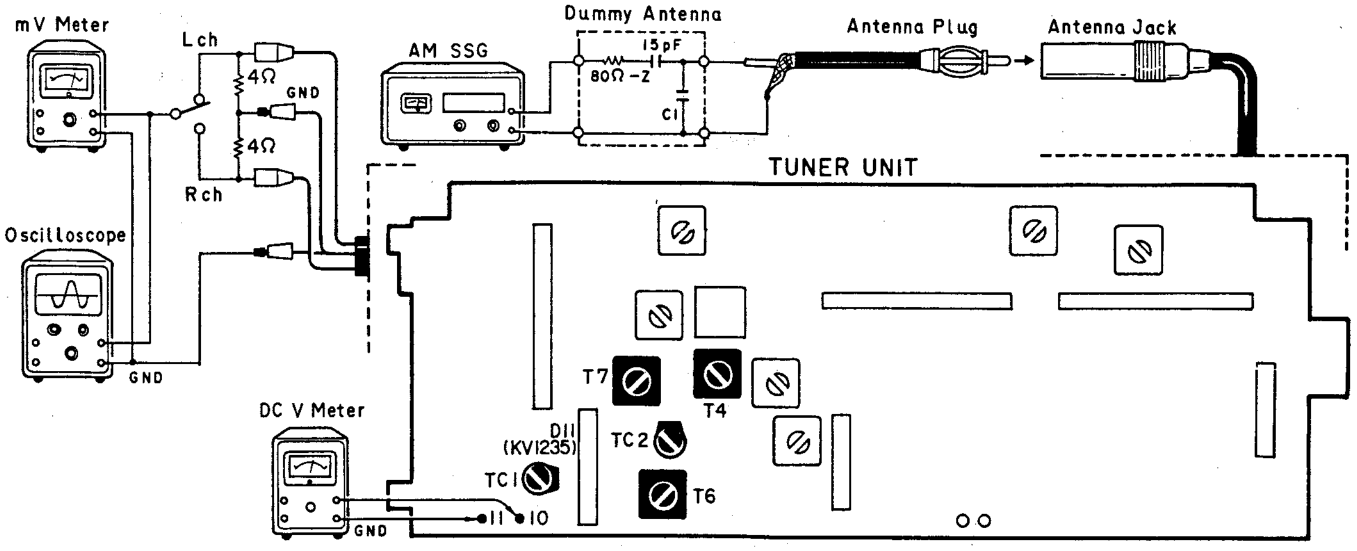

mV Meter
Lch
4Ω
GND
4Ω
Rch
Oscilloscope
GND
AM SSG
Dummy Antenna
15pF
80Ω −Z
C1
Antenna Plug
Antenna Jack
TUNER UNIT
DC V Meter
GND
T7
T4
D11
(KV1235)
TC2
TC1
11
10
T6

Fig. 25

**NOTICE:**

Select C1 so that total capacity of 80 pF is attained from the direction of receiver jack.
Z: Output impedance of the S.S.G.

- **To Adjust**

During tuning voltage adjustment of 530kHz, pay attention to the voltage difference using the color mark of D11 (KV1235).

| Frequency of AM SSG | Displayed Frequency | Adjusting Point | Color of D11 | DC V Meter | mV Meter |
|---|---|---|---|---|---|
| 1. | 530 kHz | T7 | Pink | 0.9 ± 0.1V | |
| | | | Colorless | 1.0 ± 0.1V | |
| | | | Blue | 1.1 ± 0.1V | |
| | | | White | 1.2 ± 0.1V | |
| 2. | 1,620 kHz | For Confirmation Only | Less than 9V | | |
| 3. 600kHz (400Hz, 30% modulation) output level 30 dB (μV) | 600 kHz | T4, T6 | | | Maximum output |
| 4. 1,400kHz(400Hz,30% modulation) output level 30 dB (μV) | 1,400 kHz | TC1, TC2 | | | Maximum output |
| 5. Repeat items (3) and (4) alternately so that the mV meter indicates maximum output. | | | | | |

## 3.18 AM SCAN SENSITIVITY CONFIRMATION (UKE-3100)

- **Connection Diagram (Shown in Fig. 25)**
- **To Check**

1. Set the Local.s switch to OFF.
2. Apply a signal of 1,000kHz, 400Hz 30% modulation and 27 dB ± 10 dB (μV), scan and confirm that scan stop at 1,000kHz.
3. Set the input signal from the AM SSG to 16 dB (μV), scan and confirm that scan does not stop.
4. Set the Local.s switch to ON, set the input signal from the AM SSG to $50^{+15\,\mathrm{dB}}_{-10\,\mathrm{dB}}$ (μV), scan and confirm that scan stop at 1,000kHz.

## NOTICE:

### Bass/Treble Unit

Replace the VOLUME section of the BASS/TREBLE UNIT as shown in the illustration. Solder P.C. board in order indicated by arrows. Ensure that VOLUME section is securely inserted into P.C. board as shown. P.C. board should not be tilted.

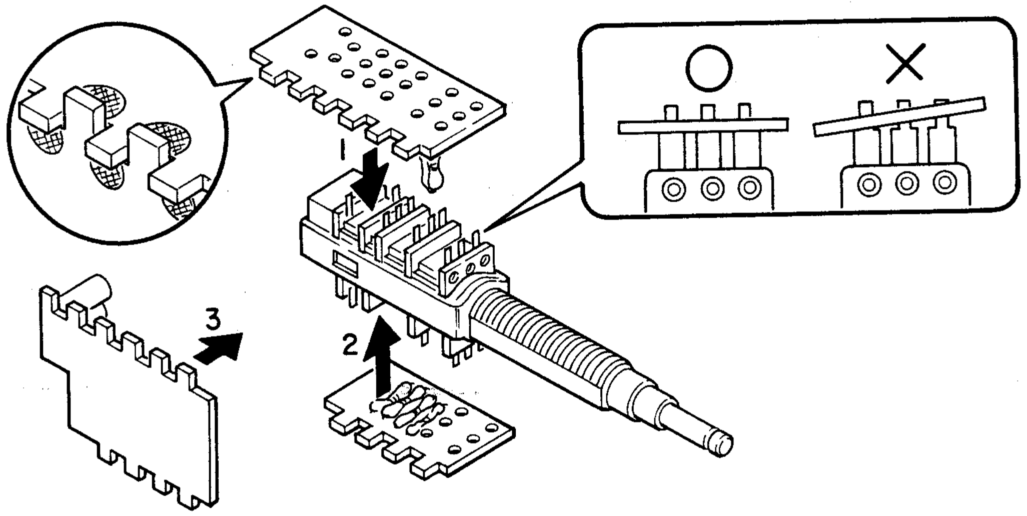
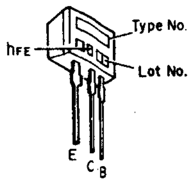


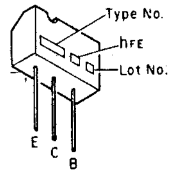
Fig. 26

- **IC's and Transistors**

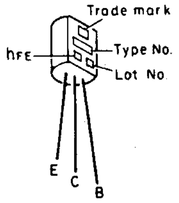
2SA1175
2SC2785
2SC2786
2SC2787


Type No.
hFE
Lot No.
E
C
B

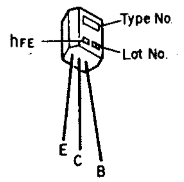
2SA673A
2SB822
2SC1545
2SC2021


Type No.
hFE
Lot No.
E
C
B

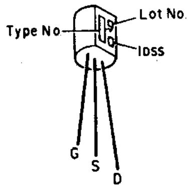
2SA720
2SC1318


Trade mark
hFE
Type No.
Lot No
E
C
B

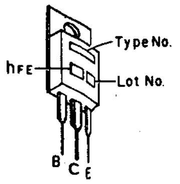
2SA1048
2SC2458


Type No
hFE
Lot No.
E
C
B

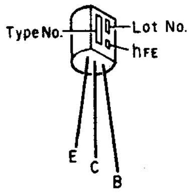
2SK49


Type No
Lot No.
IDSS
G
S
D

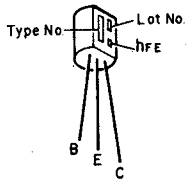
2SD1267


Type No.
hFE
Lot No.
B
C
E

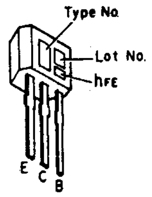
2SC536NP
2SC945
2SC1674
2SC1675
2SC1815


Type No.
Lot No.
hFE
E
C
B

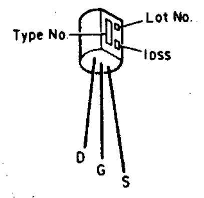
2SC2570


Type No
Lot No.
hFE
B
E
C

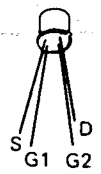
2SC536SP
2SC2840


Type No.
Lot No.
hFE
E
C
B

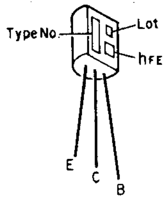
2SK163


Type No
Lot No.
IDSS
D
G
S

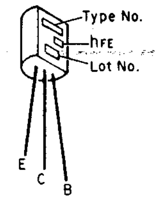
P001
SD306PA



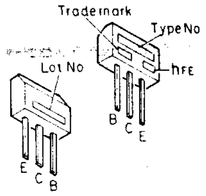
2SA1016


Type No
Lot No.
hFE
E
C
B

2SA872A
2SD468

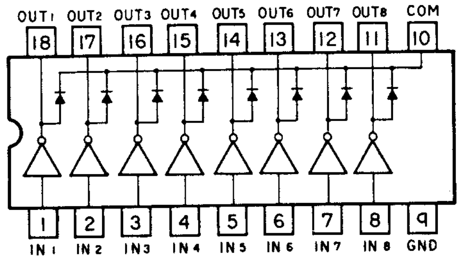

Type No.
hFE
Lot No.
E
C
B

2SC1213

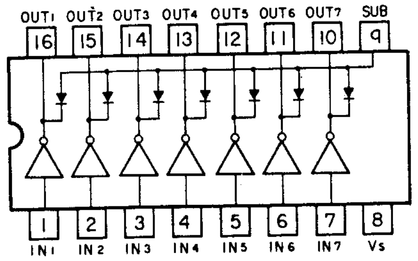

Trademark
Type No
Lot No
hFE
B
C
E
E
C
B

TA732

M54522P

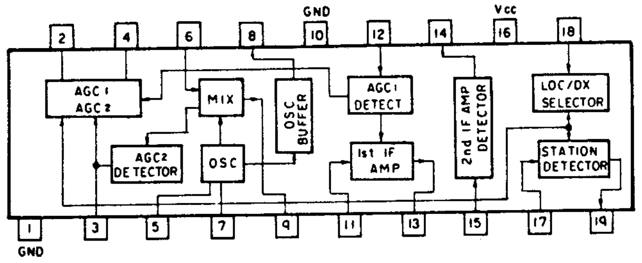

OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
OUT8
COM
18
17
16
15
14
13
12
11
10
1
2
3
4
5
6
7
8
9
IN1
IN2
IN3
IN4
IN5
IN6
IN7
IN8
GND

M54561P

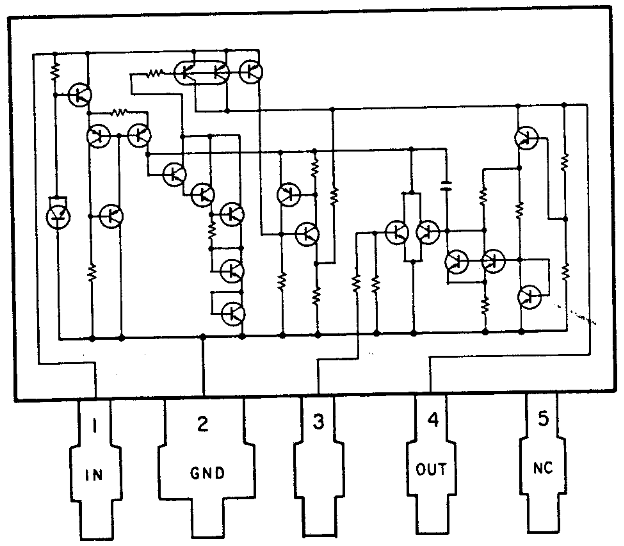

OUT1
OUT2
OUT3
OUT4
OUT5
OUT6
OUT7
SUB
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
IN1
IN2
IN3
IN4
IN5
IN6
IN7
Vs

TA762

μPC1215V

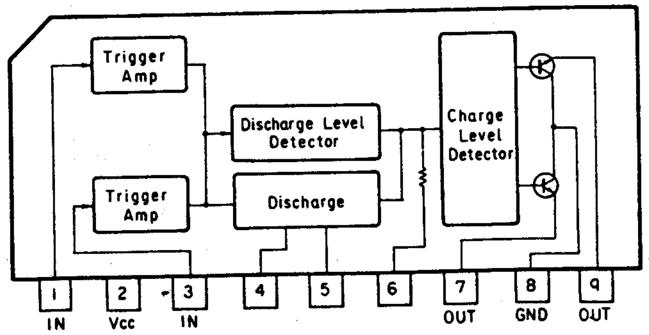

GND
Vcc
2
4
6
8
10
12
14
16
18
AGC1
AGC2
MIX
OSC BUFFER
AGC1 DETECT
2nd IF AMP DETECTOR
LOC/DX SELECTOR
AGC2 DETECTOR
OSC
1st IF AMP
STATION DETECTOR
1
3
5
7
9
11
13
15
17
19
GND

AN6540


1
2
3
4
5
IN
GND
OUT
NC

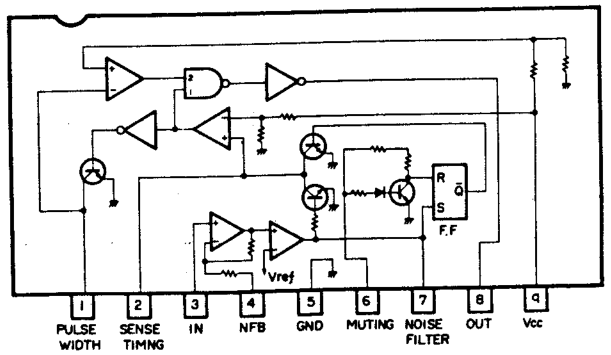
MB31

TA7324P

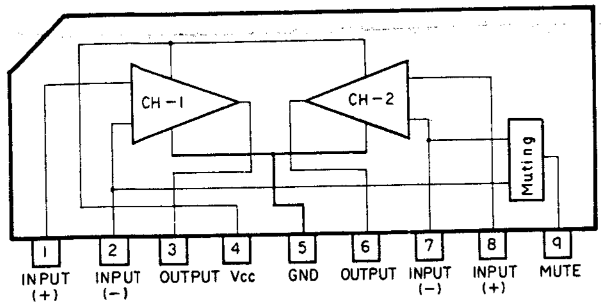

Trigger Amp
Discharge Level Detector
Charge Level Detector
Trigger Amp
Discharge
1
2
3
4
5
6
7
8
9
IN
Vcc
IN
OUT
GND
OUT

μPC1

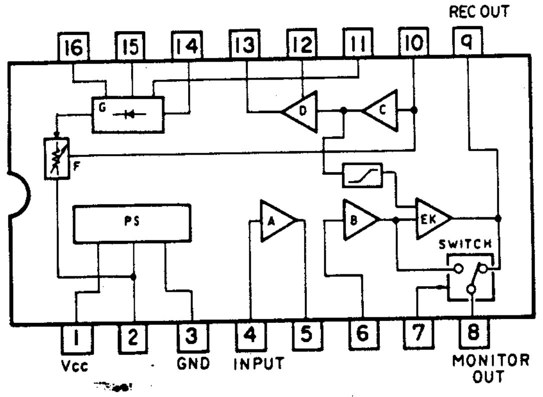
BA338


R
Q̄
S
F.F
Vref
1
2
3
4
5
6
7
8
9
PULSE WIDTH
SENSE TIMNG
IN
NFB
GND
MUTING
NOISE FILTER
OUT
Vcc

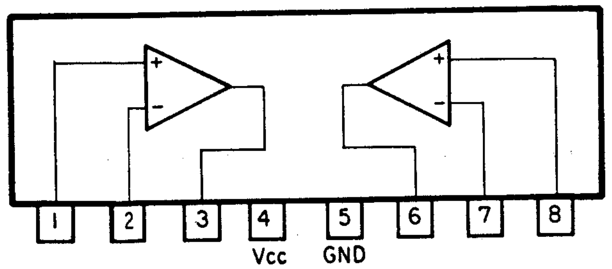
**TA7325P**


CH-1
CH-2
Muting
1 INPUT (+)
2 INPUT (−)
3 OUTPUT
4 Vcc
5 GND
6 OUTPUT
7 INPUT (−)
8 INPUT (+)
9 MUTE

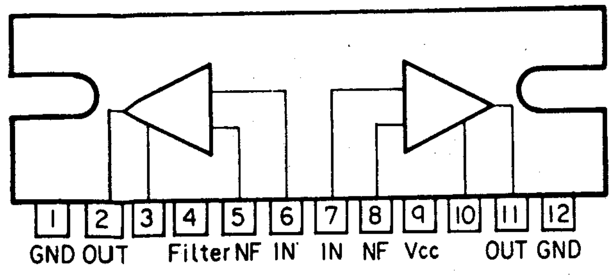
**TA7629P**


REC OUT
16
15
14
13
12
11
10
9
G
D
C
F
PS
A
B
EK
SWITCH
1 Vcc
2
3 GND
4 INPUT
5
6
7
8 MONITOR OUT

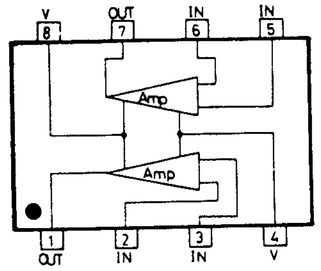
**MB3106MF**


1
2
3
4 Vcc
5 GND
6
7
8

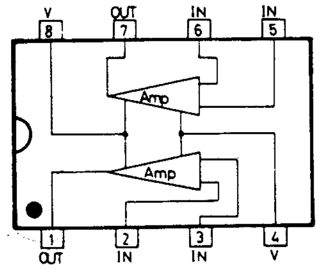
**μPC1185H2**


1 GND
2 OUT
3
4 Filter
5 NF
6 IN'
7 IN
8 NF
9 Vcc
10
11 OUT
12 GND

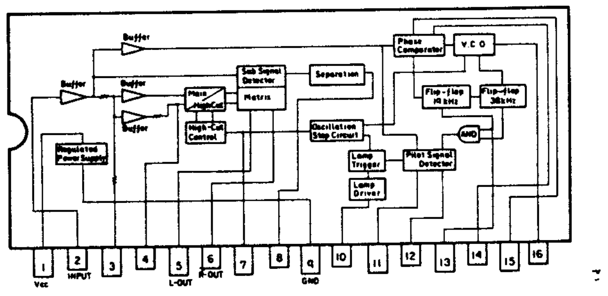
**NJM4558D-D**


V 8
OUT 7
IN 6
IN 5
Amp
Amp
1 OUT
2 IN
3 IN
4 V

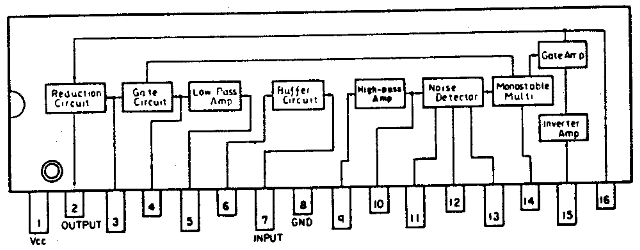
**μPC4558C**


V 8
OUT 7
IN 6
IN 5
Amp
Amp
1 OUT
2 IN
3 IN
4 V

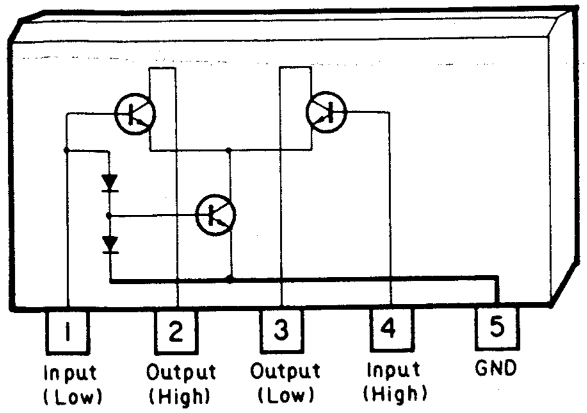
**LA3370P**


Buffer
Phase Comparator
VCO
Sub Signal Detector
Separation
Mono/High-Cut
Matrix
Flip-flop 19kHz
Flip-flop 38kHz
High-Cut Control
Oscillation Stop Control
AND
Regulated Power Supply
Lamp Trigger
Pilot Signal Detector
Lamp Driver
1 Vcc
2 INPUT
3
4
5 L-OUT
6 R-OUT
7
8
9 GND
10
11
12
13
14
15
16

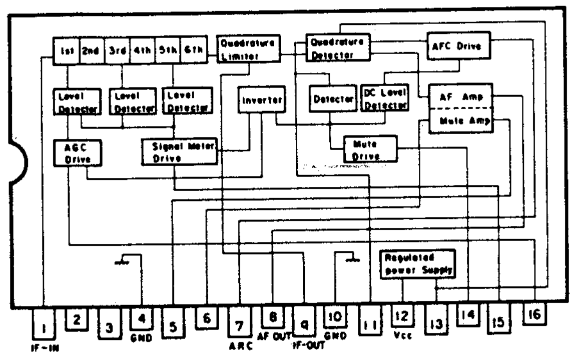
**LA2110**


Reduction Circuit
Gate Circuit
Low Pass Amp
Buffer Circuit
High-pass Amp
Noise Detector
Monostable Multi
Gate Amp
Inverter Amp
1 Vcc
2 OUTPUT
3
4
5
6
7 INPUT
8 GND
9
10
11
12
13
14
15
16

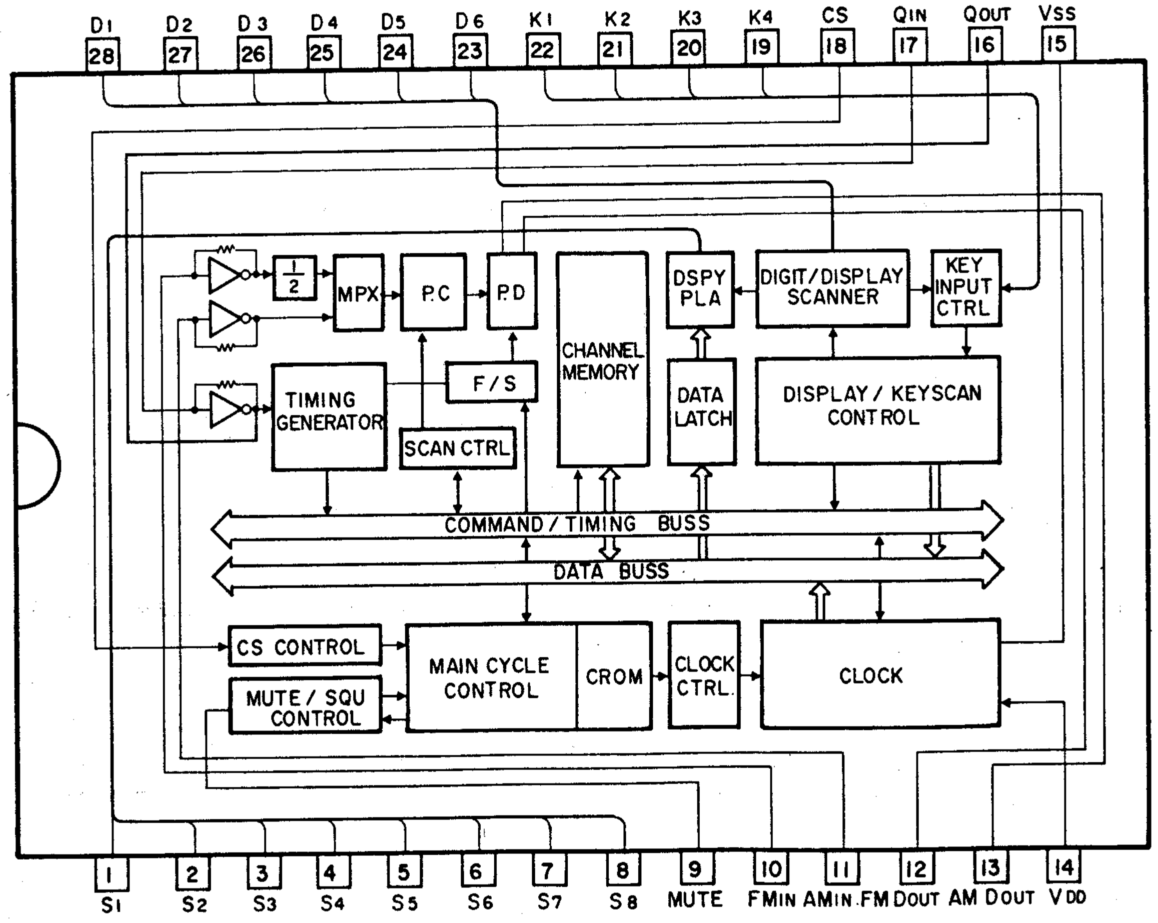
**M5215L**


1 Input (Low)
2 Output (High)
3 Output (Low)
4 Input (High)
5 GND

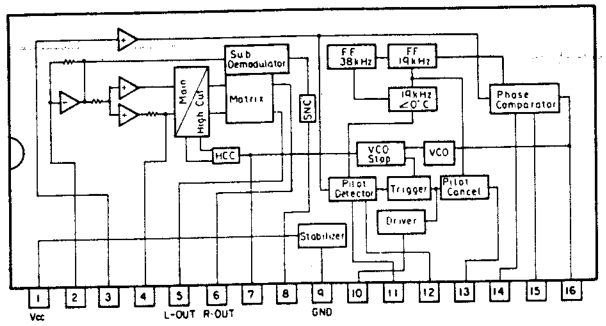
**LA1140**


1st
2nd
3rd
4th
5th
6th
Quadrature Limiter
Quadrature Detector
AFC Drive
Level Detector
Level Detector
Level Detector
Inverter
Detector
DC Level Detector
AF Amp
Mute Amp
AGC Drive
Signal Meter Drive
Mute Drive
Regulated power Supply
1 IF-IN
2
3
4 GND
5
6
7 ARC
8 AF OUT
9 IF-OUT
10 GND
11
12 Vcc
13
14
15
16

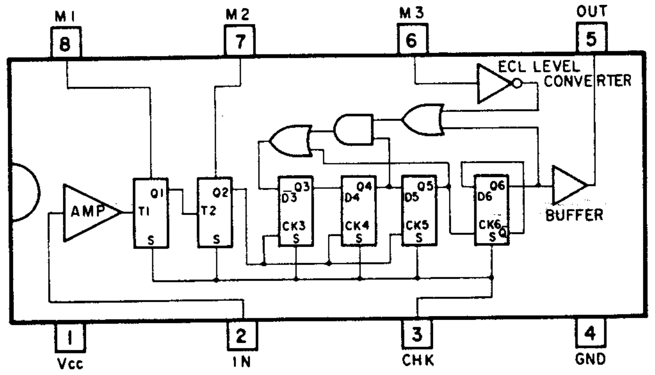
**PD7003A**
**PD7003B**


D1 28
D2 27
D3 26
D4 25
D5 24
D6 23
K1 22
K2 21
K3 20
K4 19
CS 18
QIN 17
QOUT 16
VSS 15
1/2
MPX
P.C
P.D
CHANNEL MEMORY
DSPY PLA
DIGIT/DISPLAY SCANNER
KEY INPUT CTRL
F/S
TIMING GENERATOR
SCAN CTRL
DATA LATCH
DISPLAY / KEYSCAN CONTROL
COMMAND / TIMING BUSS
DATA BUSS
CS CONTROL
MUTE / SQU CONTROL
MAIN CYCLE CONTROL
CROM
CLOCK CTRL.
CLOCK
1 S1
2 S2
3 S3
4 S4
5 S5
6 S6
7 S7
8 S8
9 MUTE
10 FMIN
11 AMIN
12 FM DOUT
13 AM DOUT
14 VDD

**LA3375P**


Sub Demodulator
FF 38kHz
FF 19kHz
Phase Comparator
Matrix
Mono/High Cut
SNC
19kHz ∠0°C
HCC
VCO Stop
VCO
Pilot Detector
Trigger
Pilot Cancel
Driver
Stabilizer
1 Vcc
2
3
4
5 L-OUT
6 R-OUT
7
8
9 GND
10
11
12
13
14
15
16

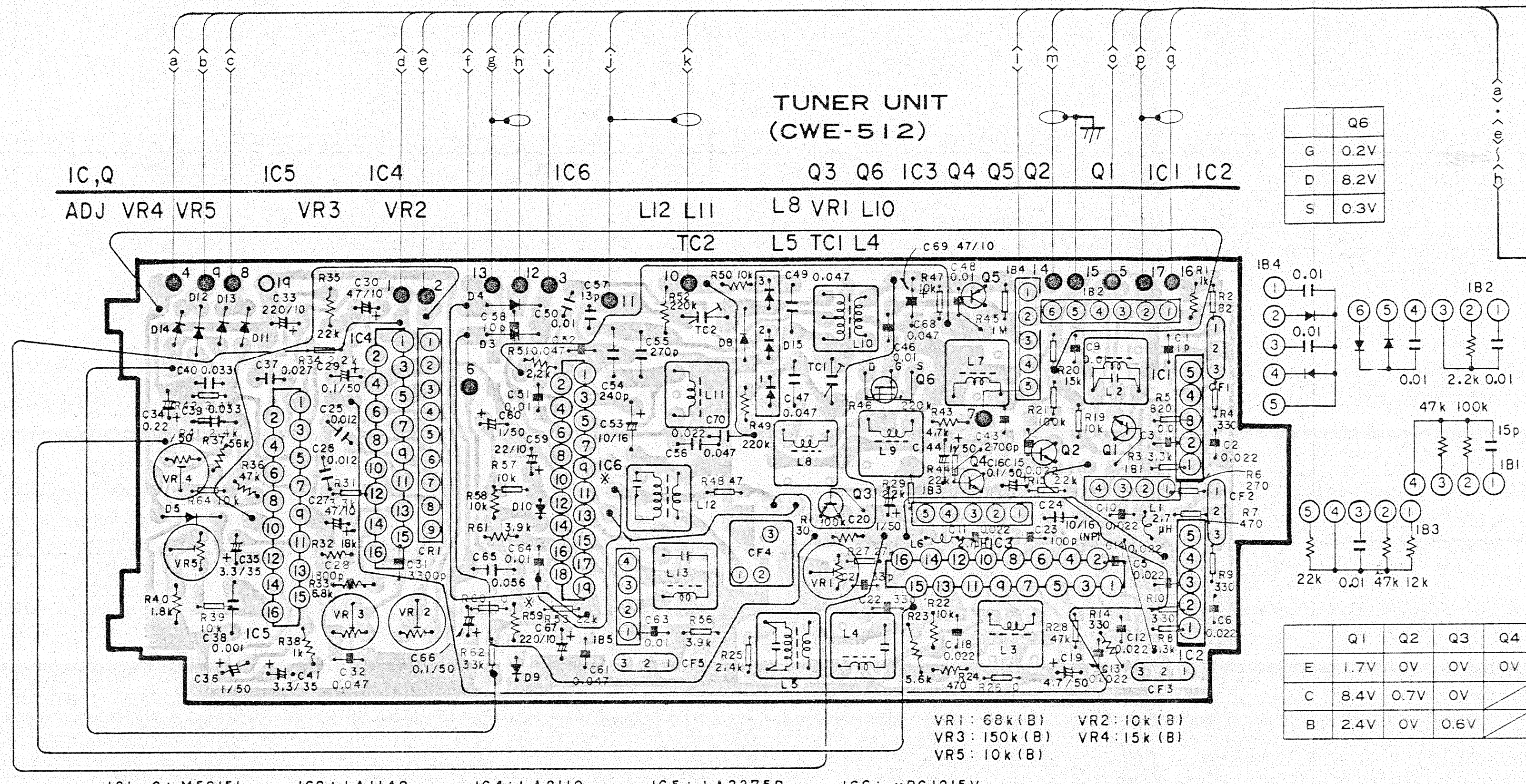
**μPB552C**


M1 8
M2 7
M3 6
OUT 5
ECL LEVEL CONVERTER
AMP
Q1
T1
S
Q2
T2
S
D3
Q3
CK3
S
D4
Q4
CK4
S
D5
Q5
CK5
S
D6
Q6
CK6
S
BUFFER
1 Vcc
2 IN
3 CHK
4 GND

## 4. CONNECTION DIAGRAM (UKE-7100)

| | 10 | 11 | 12 | 13 | 14 | 15 | 17 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | 2.2V | 4.6V | 1.8V | 1.2V | 5.3V | 0V | 2.4V | 5.2V | 5.2V | 5.2V | 2.8V | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V |

### TUNER UNIT (CWE-512)

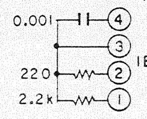

IC,Q
ADJ VR4 VR5
IC5
VR3
IC4
VR2
IC6
L12 L11
TC2
Q3 Q6 IC3 Q4 Q5 Q2
L8 VR1 L10
L5 TC1 L4
Q1
IC1 IC2
IB4
IB2
IB1
IB3
0.01
2.2k
47k
100k
15p
22k
12k
<b>~<d>·<i>~<m>·<o>~<q>
<a>·<e>~<h>

| | Q6 |
|---|---|
| G | 0.2V |
| D | 8.2V |
| S | 0.3V |

| | Q1 | Q2 | Q3 | Q4 | Q5 |
|---|---|---|---|---|---|
| E | 1.7V | 0V | 0V | 0V | 8.2V |
| C | 8.4V | 0.7V | 0V | | |
| B | 2.4V | 0V | 0.6V | | 8.1V |

VR1: 68k (B)   VR2: 10k (B)
VR3: 150k (B)   VR4: 15k (B)
VR5: 10k (B)

IC1, 2: M5215L   IC3: LA1140   IC4: LA2110   IC5: LA3375P   IC6: µPC1215V
Q1, 4: 2SC2786-K or 2SC2840-D   Q2, 3: 2SC2785-K or 2SC2458-BL   Q5: 2SA1016-F or 2SA872A-D
Q6: 2SK163-M   D3~5, 8, 9, 11 14: 1S1555, 1S2076, 1S2473 or DS442   D10: MV-11   D15: KV1235


0.001
220
2.2k
IB5

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| IC1 | 1.4V | 5.1V | 8.6V | 1.4V | 0V |
| IC2 | 1.4V | 7V | 8.6V | 1.4V | 0V |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC3 | 2.6V | 2.6V | 2.6V | 0V | 2.1V | 0.7V | 5V | 5.1V | 5V | 0V | 5V | 8.4V | 5V | 2.4V | 0.4V | 4.1V |
| IC4 | 8.6V | 3.3V | | | | 4.2V | | 0V | | 3V | 3V | 2.4V | 0.6V | 0V | 4.5V | 4.5V |
| IC5 | | 2.9V | 3V | | 2.9V | 2.9V | | | 0V | | 2.4V | 3.2V | 1.2V | 2.4V | 2.4V | |
| IC6 | 0V | 8.1V | | 0V | 2.5V | 1.4V | 2.5V | 5.5V | 8.4V | 0V | 0.7V | 1.8V | | 2.4V | 6.9V | 8.6V |

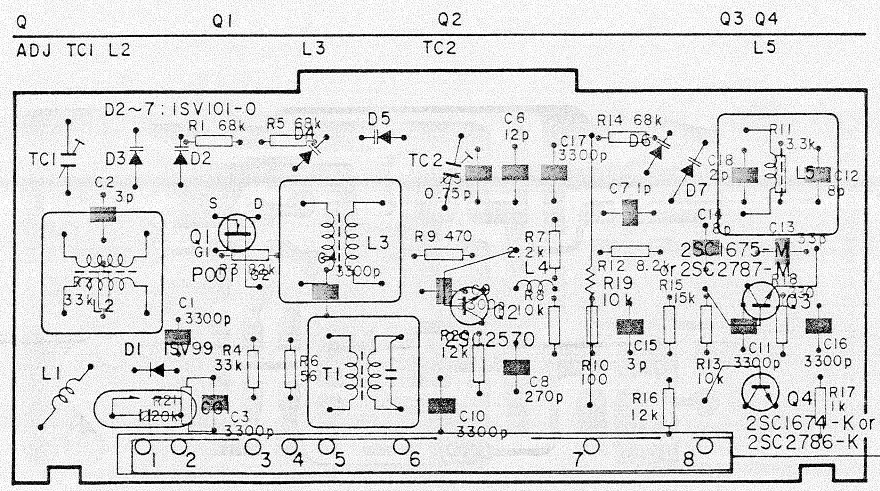
| | Q1 | Q2 | Q3 | Q4 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 |
|---|---|---|---|---|---|---|---|---|---|---|
| E | 0V | 13.9V | 0V | 11.3V | 0V | | 0V | 0V | 0V | |
| C | | | | | | 11.3V | | | | 8.7V |
| B | | | | | | 1.7V | | | | |

| | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 | Q21 |
|---|---|---|---|---|---|---|---|---|---|---|
| E | 4.4V | 4.4V | 4.4V | 4.4V | 3.3V | 1.7V | 1.7V | 2.8V | 2.8V | 8.7V |
| C | | 2.8V | 5.2V | 2.8V | 8.6V | 7.4V | 7.4V | 7.4V | 7.4V | 8.6V |
| B | | | | | | 2.3V | 2.3V | 3.4V | 3.4V | |

| | Q22 | Q23 | Q24 | Q26 | Q27 | Q28 | Q29 |
|---|---|---|---|---|---|---|---|
| E | 8.7V | 0V | 6V | 0V | 0V | 0V | 8.6V |
| C | 8.6V | | | | | | |
| B | | | | | | | |

| | Q5 |
|---|---|
| G | 1.2V |
| D | 11.3V |
| S | |

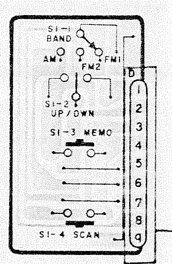
### FRONT END (CWB-090)


Q
ADJ TC1 L2
Q1
L3
Q2
TC2
Q3 Q4
L5
D2~7: 1SV101-0
TC1
L2
L1
D1 1SV99
Q1
L3
T1
L4
Q2 2SC2570
2SC1675-M or 2SC2787-M
Q3
Q4 2SC1674-K or 2SC2786-K
1 2 3 4 5 6 7 8

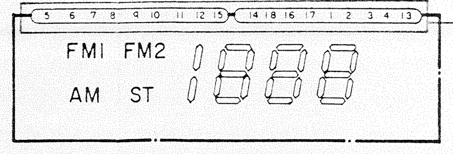
| | Q1 |
|---|---|
| G1 | 2.2V |
| G2 | 8.5V |
| D | 7.3V |
| S | 0V |

| | Q2 | Q3 |
|---|---|---|
| E | | 3.4V |
| C | 8.6V | 8.3V |
| B | | 4.1V |

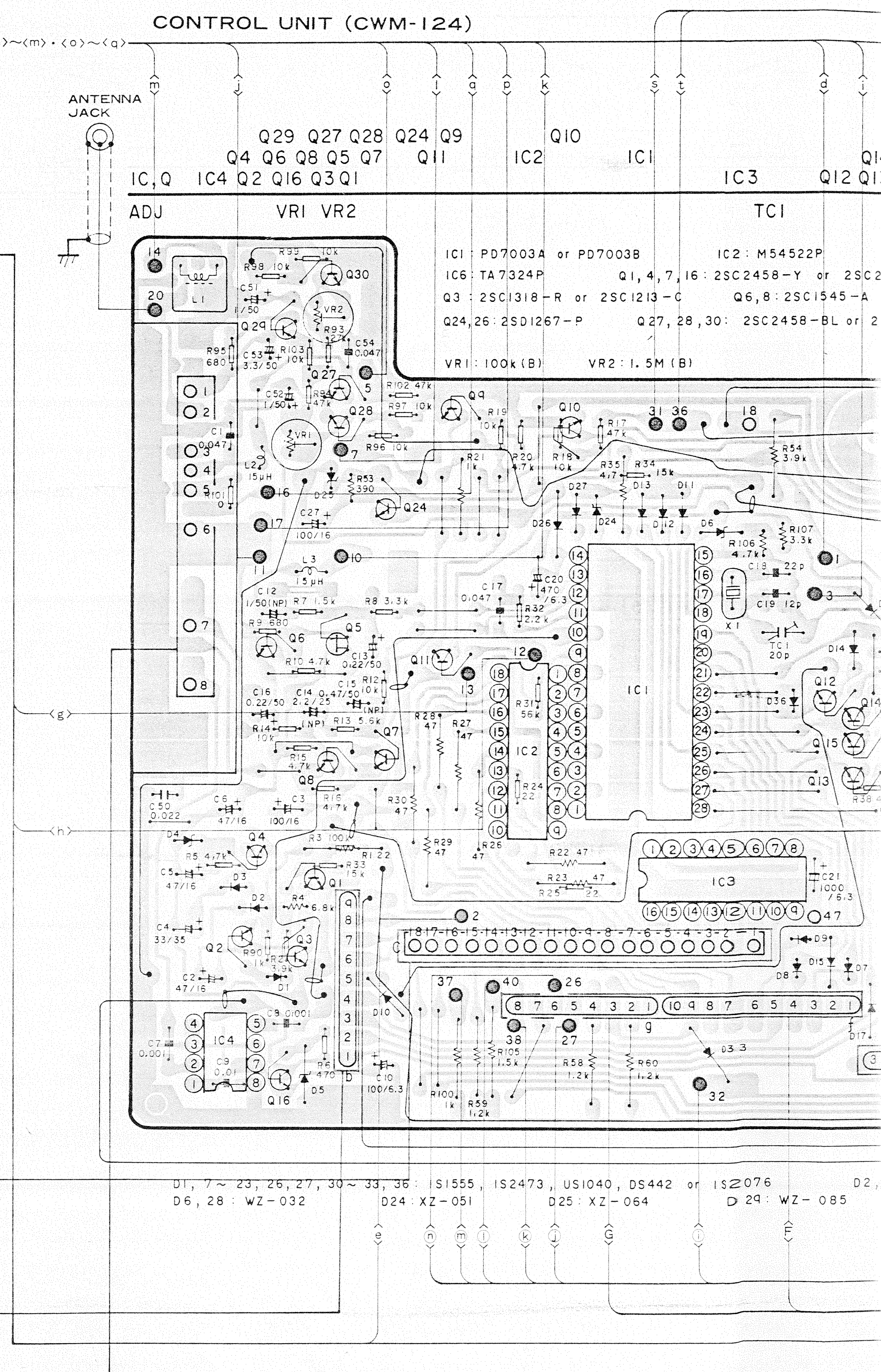
### SWITCH UNIT (A)


S1-1 BAND
AM
FM2
FM1
S1-2 UP/DOWN
S1-3 MEMO
S1-4 SCAN

### DISPLAY (CXC-490)


5 6 7 8 9 10 11 12 15
14 18 16 17 1 2 3 4 13
FM1 FM2
AM ST

### CONTROL UNIT (CWM-124)


ANTENNA JACK
IC,Q
ADJ
IC4 Q2 Q16 Q3 Q1
Q4 Q6 Q8 Q5 Q7
Q29 Q27 Q28 Q24 Q9
Q11
VR1 VR2
IC2
Q10
IC1
IC3
TC1
Q12
<g>
<h>
e n m l k j G i F

IC1: PD7003A or PD7003B   IC2: M54522P
IC6: TA7324P   Q1, 4, 7, 16: 2SC2458-Y or 2SC2
Q3: 2SC1318-R or 2SC1213-C   Q6, 8: 2SC1545-A
Q24, 26: 2SD1267-P   Q27, 28, 30: 2SC2458-BL or 2

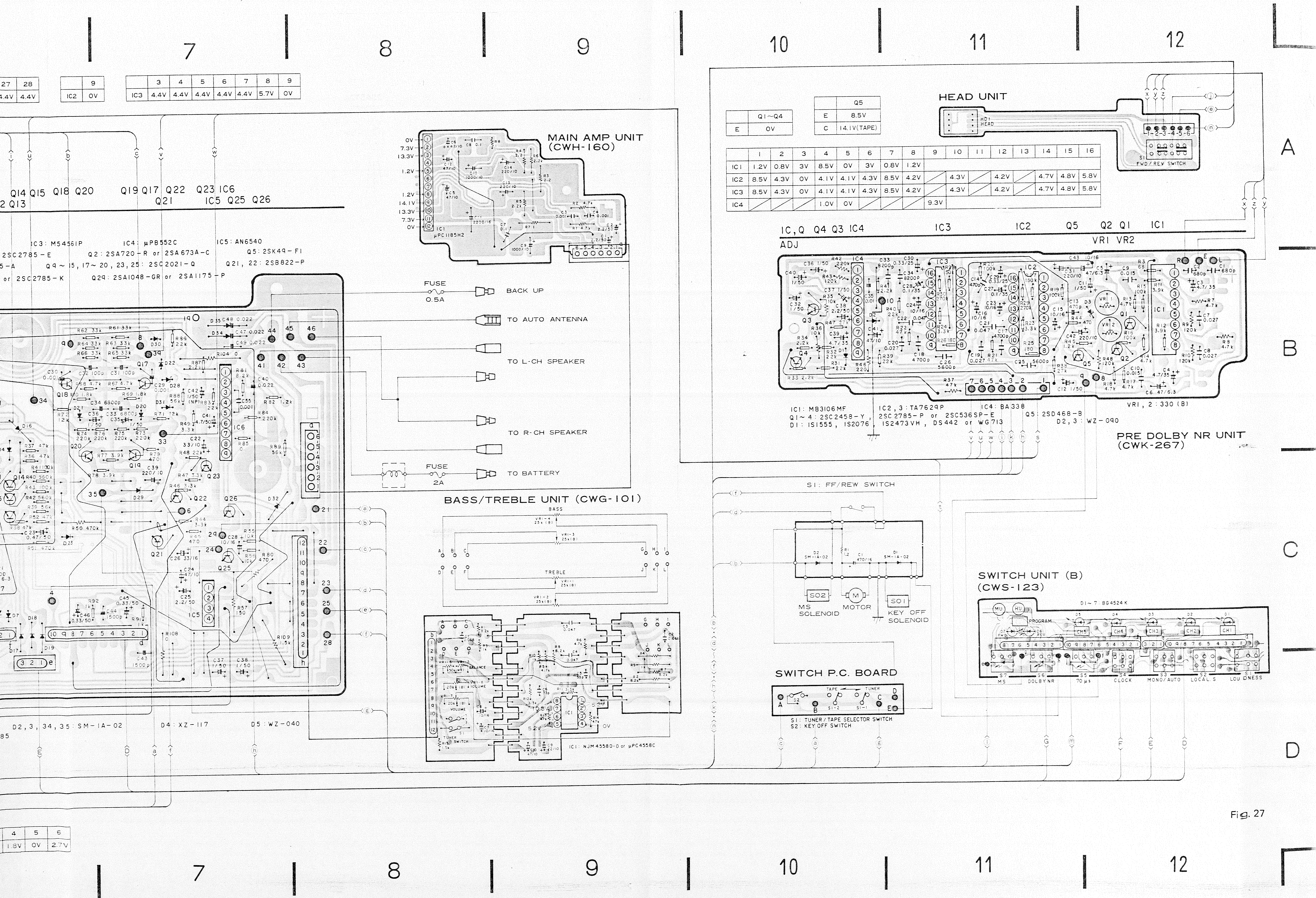
VR1: 100k (B)   VR2: 1.5M (B)

D1, 7~23, 26, 27, 30~33, 36: 1S1555, 1S2473, US1040, DS442 or 1S2076   D2,
D6, 28: WZ-032   D24: XZ-051   D25: XZ-064   D29: WZ-085

| | 1 | 3 | 4 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| IC4 | 3.3V | 0V | 0V | 0V | 3.3V | 0V |

| | 1 | 2 | 4 |
|---|---|---|---|
| IC5 | 14.1V | 0V | 8.7V |

| | 1 | 3 | 4 |
|---|---|---|---|
| IC6 | 1.4V | 1.4V | 1.8V |



| 27 | 28 |
|---|---|
| 4.4V | 4.4V |

| | 9 |
|---|---|
| IC2 | 0V |

| | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|
| IC3 | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 5.7V | 0V |

IC3: M54561P
IC4: μPB552C
IC5: AN6540
2SC2785-E
Q2: 2SA720-R or 2SA673A-C
Q5: 2SK49-F1
5-A
Q9 ~ 15, 17 ~ 20, 23, 25: 2SC2021-Q
Q21, 22: 2SB822-P
or 2SC2785-K
Q29: 2SA1048-GR or 2SA1175-P

D2, 3, 34, 35: SM-1A-02
D4: XZ-117
D5: WZ-040
85

| 4 | 5 | 6 |
|---|---|---|
| 1.8V | 0V | 2.7V |

| | Q1~Q4 |
|---|---|
| E | 0V |

| | Q5 |
|---|---|
| E | 8.5V |
| C | 14.1V(TAPE) |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | 1.2V | 0.8V | 3V | 8.5V | 0V | 3V | 0.8V | 1.2V | | | | | | | | |
| IC2 | 8.5V | 4.3V | 0V | 4.1V | 4.1V | 4.3V | 8.5V | 4.2V | | 4.3V | | 4.2V | | 4.7V | 4.8V | 5.8V |
| IC3 | 8.5V | 4.3V | 0V | 4.1V | 4.1V | 4.3V | 8.5V | 4.2V | | 4.3V | | 4.2V | | 4.7V | 4.8V | 5.8V |
| IC4 | | | | 1.0V | 0V | | | | 9.3V | | | | | | | |

IC1: MB3106MF
IC2, 3: TA7629P
IC4: BA338
Q1 ~ 4: 2SC2458-Y, 2SC2785-P or 2SC536SP-E
Q5: 2SD468-B
D1: 1S1555, 1S2076, 1S2473VH, DS442 or WG713
D2, 3: WZ-090
VR1, 2: 330 (B)

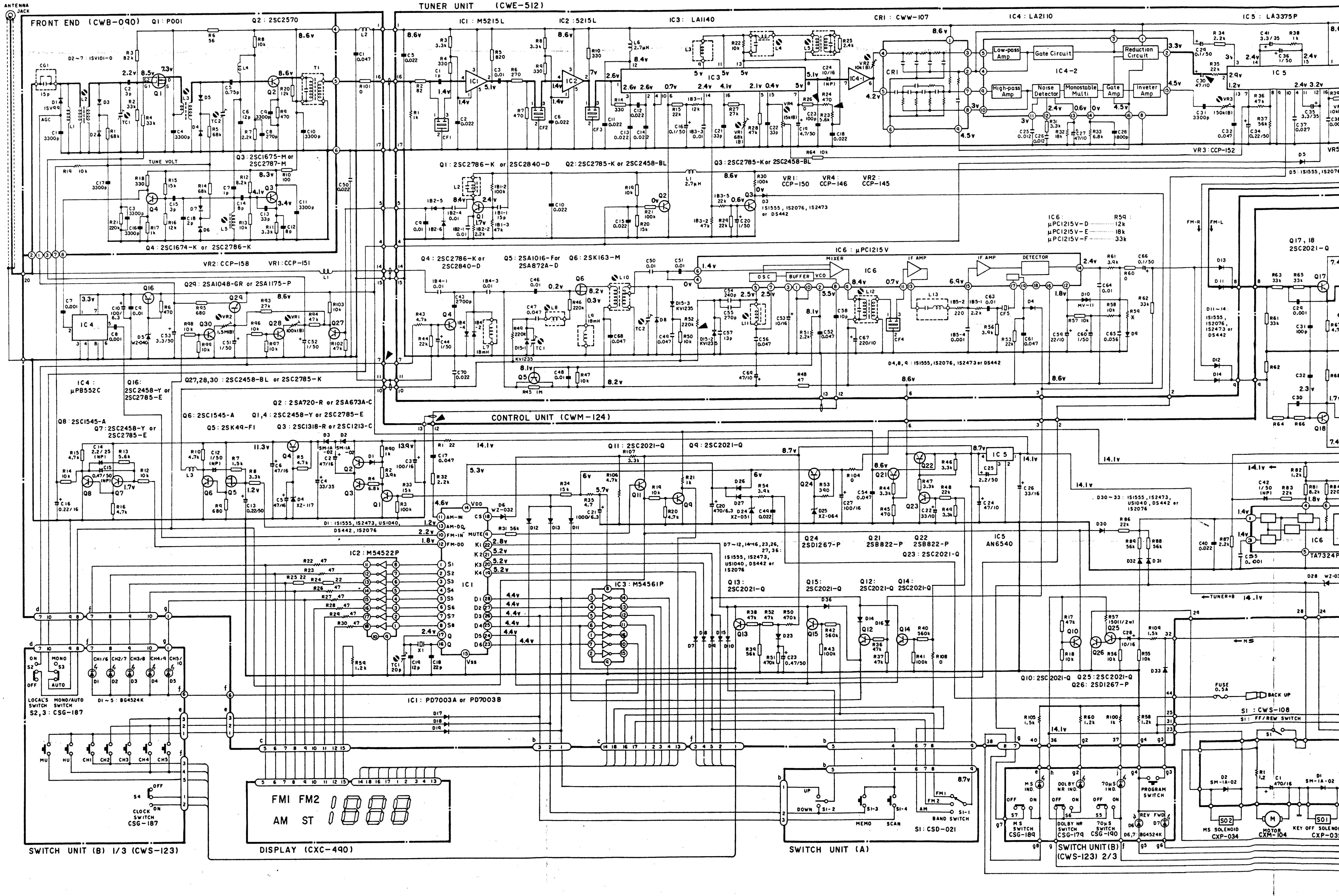
IC1: NJM4558D-D or μPC4558C

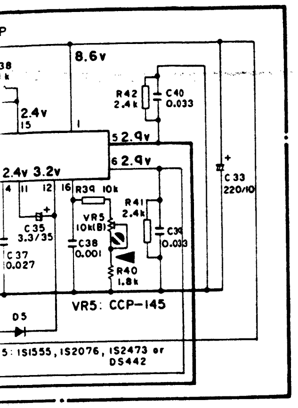
S1: TUNER / TAPE SELECTOR SWITCH
S2: KEY OFF SWITCH

7
8
9
10
11
12
A
B
C
D
MAIN AMP UNIT (CWH-160)
IC1 μPC1185H2
0V
7.3V
13.3V
1.2V
1.2V
14.1V
13.3V
7.3V
0V
FUSE 0.5A
BACK UP
TO AUTO ANTENNA
TO L-CH SPEAKER
TO R-CH SPEAKER
FUSE 2A
TO BATTERY
Q14 Q15 Q18 Q20
2 Q13
Q19 Q17 Q22 Q23 IC6
Q21
IC5 Q25 Q26
BASS/TREBLE UNIT (CWG-101)
BASS
TREBLE
VOLUME
BALANCE
TUNER
HEAD UNIT
HD1 HEAD
S1 FWD / REV SWITCH
IC, Q Q4 Q3 IC4 IC3 IC2 Q5 Q2 Q1 IC1
ADJ VR1 VR2
PRE DOLBY NR UNIT (CWK-267)
S1: FF/REW SWITCH
SO2 MS SOLENOID
M MOTOR
SO1 KEY OFF SOLENOID
SWITCH P.C. BOARD
TAPE TUNER
S1-2 S1-1
SWITCH UNIT (B) (CWS-123)
D1 ~ 7 BG4524K
PROGRAM
MU
HU
CH5 CH4 CH3 CH2 CH1
S7 MS
S6 DOLBY NR
S5 70μs
S4 CLOCK
S3 MONO / AUTO
S2 LOCAL S
S1 LOUDNESS

Fig. 27

# 5. SCHEMATIC CIRCUIT DIAGRAM (UKE-7100)


1
2
3
4
5
6
A
B
C
D
ANTENNA JACK
FRONT END (CWB-090)
Q1 : P001
Q2 : 2SC2570
Q3 : 2SC1675-M or 2SC2787-M
Q4 : 2SC1674-K or 2SC2786-K
TUNE VOLT
AGC
T1
L1
L2
L3
L4
L5
TUNER UNIT (CWE-512)
IC1 : M5215L
IC2 : 5215L
IC3 : LA1140
CR1 : CWW-107
IC4 : LA2110
IC5 : LA3375P
Low-pass Amp
Gate Circuit
Reduction Circuit
High-pass Amp
Noise Detector
Monostable Multi
Gate Amp
Inveter Amp
IC4-2
VR3 : CCP-152
Q1 : 2SC2786-K or 2SC2840-D
Q2 : 2SC2785-K or 2SC2458-BL
Q3 : 2SC2785-K or 2SC2458-BL
VR1 : CCP-150
VR4 : CCP-146
VR2 : CCP-145
D3 1S1555, 1S2076, 1S2473 or DS442
D5 : 1S1555, 1S2076
IC6 : µPC1215V-D R59 12k
µPC1215V-E 18k
µPC1215V-F 33k
IC6 : µPC1215V
MIXER
IF AMP
DETECTOR
OSC
BUFFER
VCO
Q4 : 2SC2786-K or 2SC2840-D
Q5 : 2SA1016-F or 2SA872A-D
Q6 : 2SK163-M
D4, 8, 9 : 1S1555, 1S2076, 1S2473 or DS442
D11~14: 1S1555, 1S2076, 1S2473 or DS442
Q17, 18 2SC2021-Q
FM-R
FM-L
VR2 : CCP-158
VR1 : CCP-151
Q29 : 2SA1048-GR or 2SA1175-P
IC4 : µPB552C
Q16 : 2SC2458-Y or 2SC2785-E
Q27, 28, 30 : 2SC2458-BL or 2SC2785-K
CONTROL UNIT (CWM-124)
Q8 : 2SC1545-A
Q7 : 2SC2458-Y or 2SC2785-E
Q2 : 2SA720-R or 2SA673A-C
Q6 : 2SC1545-A
Q1, 4 : 2SC2458-Y or 2SC2785-E
Q5 : 2SK49-F1
Q3 : 2SC1318-R or 2SC1213-C
D1 : 1S1555, 1S2473, US1040, DS442, 1S2076
Q11 : 2SC2021-Q
Q9 : 2SC2021-Q
IC5
AN6540
Q24 2SD1267-P
Q21 2SB822-P
Q22 2SB822-P
Q23 : 2SC2021-Q
D7~12, 14~16, 23, 26, 27, 36 : 1S1555, 1S2473, US1040, DS442 or 1S2076
Q13 : 2SC2021-Q
Q15 : 2SC2021-Q
Q12 : 2SC2021-Q
Q14 : 2SC2021-Q
IC2 : M54522P
IC3 : M54561P
IC1
IC1 : PD7003A or PD7003B
VDD
Vss
AM-IN
AM-DQ
FM-IN
FM-DO
MUTE
D30~33 : 1S1555, 1S2473, US1040, DS442 or 1S2076
IC6
TA7324P
Q10 : 2SC2021-Q
Q25 : 2SC2021-Q
Q26 : 2SD1267-P
TUNER+B
FUSE 0.5A
BACK UP
S1 : CWS-108
S1 : FF/REW SWITCH
ON
OFF
MONO
AUTO
LOCAL'S MONO/AUTO SWITCH
S2, 3 : CSG-187
CH1/6
CH2/7
CH3/8
CH4/9
CH5/10
D1~5 : BG4524K
MU
HU
CH1
CH2
CH3
CH4
CH5
CLOCK SWITCH CSG-187
SWITCH UNIT (B) 1/3 (CWS-123)
FM1 FM2
AM ST
DISPLAY (CXC-490)
UP
DOWN
MEMO
SCAN
FM1
FM2
AM
BAND SWITCH
S1 : CSD-021
SWITCH UNIT (A)
M S IND.
DOLBY NR IND.
70µS IND.
PROGRAM SWITCH
M S SWITCH CSG-189
DOLBY NR SWITCH CSG-179
70µS SWITCH CSG-190
REV FWD
D6, 7 BG4524K
SWITCH UNIT (B) (CWS-123) 2/3
MS SOLENOID CXP-034
MOTOR CXM-104
KEY OFF SOLENOID CXP-03
SM-1A-02


8.6v
R42 2.4k
C40 0.033
C33 220/10
VR5 (10MB)
R41 2.4k
R40 1.8k
C35 3.3/35
C37 0.027
C38 0.001
D5
VR5 : CCP-145
D5 : 1S1555, 1S2076, 1S2473 or DS442

NOTE :

—▭— Indicates a chip resistor.

—▮— Indicates a chip capacitor.

SWITCHES :

◉ BASS / TREBLE UNIT

S1 : TUNER SWITCH ............ ON – OFF

◉ HEAD UNIT

S1 : HEAD SELECTOR SWITCH ............ FWD – REV

◉ SWITCH P.C. BOARD

S1 : TUNER/TAPE SELECTOR SWITCH ...... TUNER – TAPE

S2 : KEY OFF SWITCH ............ ON – OFF

◉ SWITCH UNIT (A)

S1 : BAND SWITCH ............ FM1 – FM2 – AM

◉ SWITCH UNIT (B)

S1 : LOUDNESS SWITCH ............ ON – OFF

S2 : LOCAL. S SWITCH ............ ON – OFF

S3 : MONO / AUTO SWITCH ............ MONO – AUTO

S4 : CLOCK SWITCH ............ ON – OFF

S5 : 70μS SWITCH ............ ON – OFF

S6 : DOLBY NR SWITCH ............ ON – OFF

S7 : MS SWITCH ............ ON – OFF

◉ MISCELLANEOUS

S1 : FF / REW SWITCH ON – OFF

The underlined indicates the switch position.

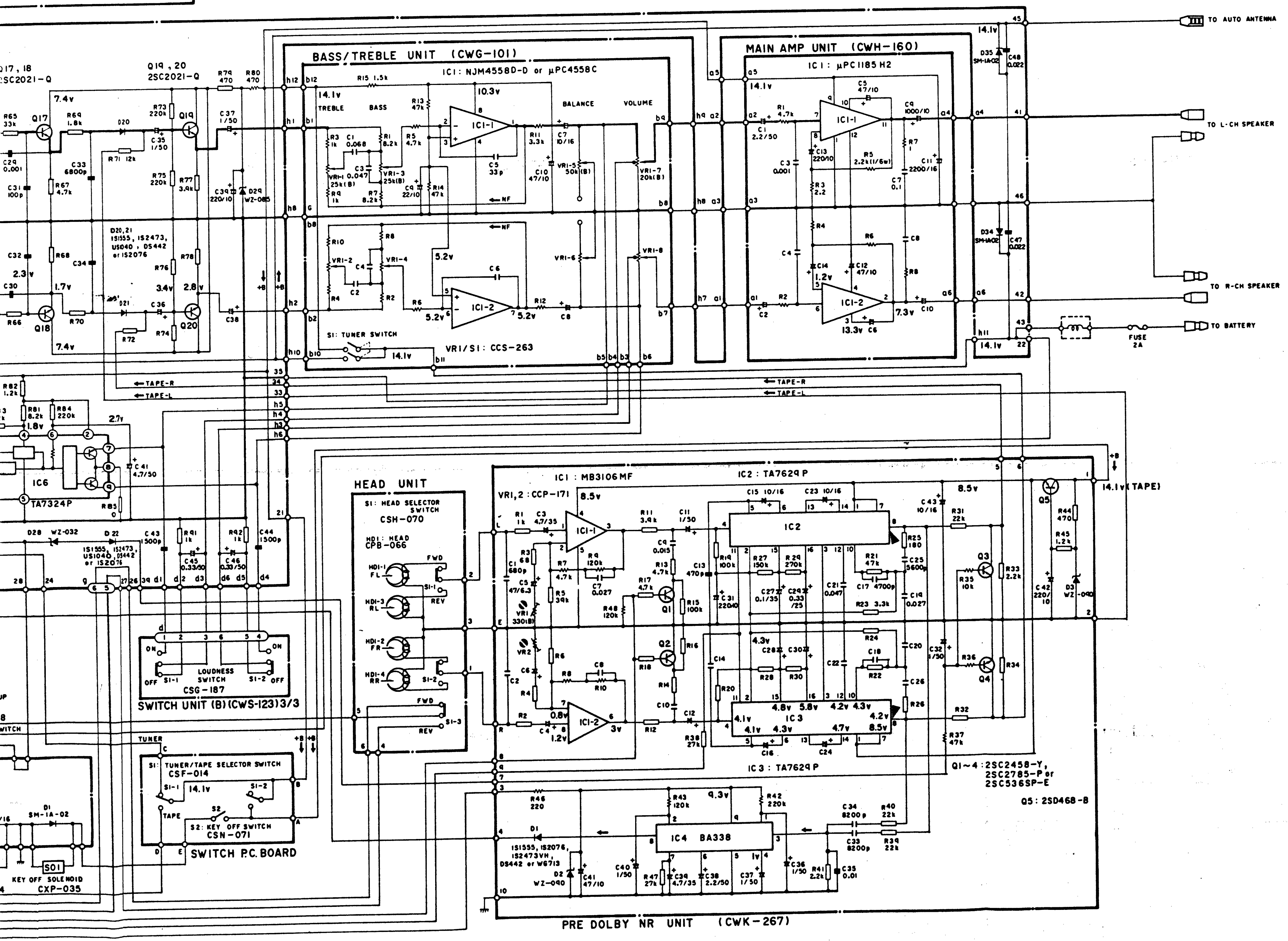
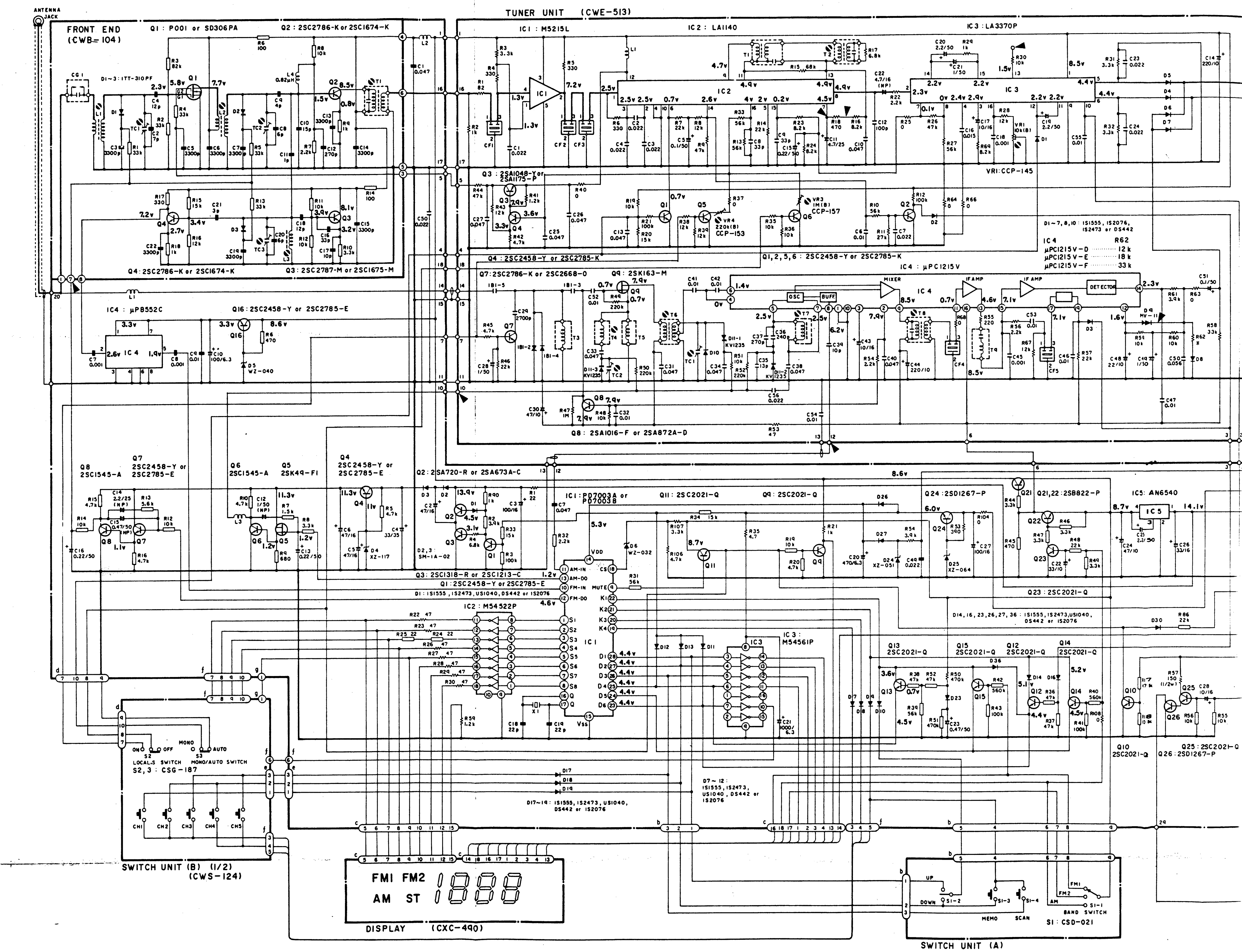

Q17, 18 2SC2021-Q
Q19, 20 2SC2021-Q
D20, 21 1S1555, 1S2473, US040, DS442 or 1S2076
BASS/TREBLE UNIT (CWG-101)
IC1 : NJM4558D-D or μPC4558C
TREBLE
BASS
BALANCE
VOLUME
S1 : TUNER SWITCH
VR1/S1 : CCS-263
MAIN AMP UNIT (CWH-160)
IC1 : μPC1185H2
TO AUTO ANTENNA
TO L-CH SPEAKER
TO R-CH SPEAKER
TO BATTERY
FUSE 2A
TAPE-R
TAPE-L
IC6
TA7324P
HEAD UNIT
S1 : HEAD SELECTOR SWITCH CSH-070
HD1 : HEAD CPB-066
FWD
REV
LOUDNESS SWITCH
CSG-187
SWITCH UNIT (B) (CWS-123) 3/3
TUNER
S1 : TUNER/TAPE SELECTOR SWITCH CSF-014
TAPE
S2 : KEY OFF SWITCH CSN-071
SWITCH P.C. BOARD
KEY OFF SOLENOID CXP-035
SM-1A-02
IC1 : MB3106MF
VR1, 2 : CCP-171
IC2 : TA7629P
IC3 : TA7629P
IC4 BA338
14.1v (TAPE)
Q1~4 : 2SC2458-Y, 2SC2785-P or 2SC536SP-E
Q5 : 2SD468-B
1S1555, 1S2076, 1S2473VH, DS442 or W6713
WZ-090
PRE DOLBY NR UNIT (CWK-267)
7
8
9
10
11
12
A
B
C
D

Fig. 28

## 6. SCHEMATIC CIRCUIT DIAGRAM(UKE-3100)


1
2
3
4
5
6
A
B
C
D
ANTENNA JACK
FRONT END (CWB-104)
Q1 : P001 or SD306PA
Q2 : 2SC2786-K or 2SC1674-K
D1~3 : ITT-310PF
Q4 : 2SC2786-K or 2SC1674-K
Q3 : 2SC2787-M or 2SC1675-M
IC4 : μPB552C
Q16 : 2SC2458-Y or 2SC2785-E
TUNER UNIT (CWE-513)
IC1 : M5215L
IC2 : LA1140
IC3 : LA3370P
VR1 : CCP-145
Q3 : 2SA1048-Y or 2SA1175-P
Q4 : 2SC2458-Y or 2SC2785-K
Q1, 2, 5, 6 : 2SC2458-Y or 2SC2785-K
D1~7, 8, 10 : 1S1555, 1S2076, 1S2473 or DS442
IC4 μPC1215V-D R62 12k
μPC1215V-E 18k
μPC1215V-F 33k
Q7 : 2SC2786-K or 2SC2668-O
Q9 : 2SK163-M
IC4 : μPC1215V
MIXER
IF AMP
IF AMP
DETECTOR
OSC
BUFF
Q8 : 2SA1016-F or 2SA872A-D
Q8 2SC1545-A
Q7 2SC2458-Y or 2SC2785-E
Q6 2SC1545-A
Q5 2SK49-F1
Q4 2SC2458-Y or 2SC2785-E
Q2 : 2SA720-R or 2SA673A-C
IC1 : PD7003A or PD7003B
Q11 : 2SC2021-Q
Q9 : 2SC2021-Q
Q24 : 2SD1267-P
Q21, 22 : 2SB822-P
IC5 : AN6540
Q3 : 2SC1318-R or 2SC1213-C
Q1 : 2SC2458-Y or 2SC2785-E
D1 : 1S1555, 1S2473, US1040, DS442 or 1S2076
IC2 : M54522P
Q23 : 2SC2021-Q
D14, 16, 23, 26, 27, 36 : 1S1555, 1S2473, US1040, DS442 or 1S2076
IC3 : M54561P
Q13 2SC2021-Q
Q15 2SC2021-Q
Q12 2SC2021-Q
Q14 2SC2021-Q
Q10 2SC2021-Q
Q25 : 2SC2021-Q
Q26 : 2SD1267-P
D7~12 : 1S1555, 1S2473, US1040, DS442 or 1S2076
D17~19 : 1S1555, 1S2473, US1040, DS442 or 1S2076
LOCAL.S SWITCH
MONO/AUTO SWITCH
S2, 3 : CSG-187
CH1
CH2
CH3
CH4
CH5
SWITCH UNIT (B) (1/2) (CWS-124)
FM1 FM2
AM ST
DISPLAY (CXC-490)
UP
DOWN
MEMO
SCAN
BAND SWITCH
S1 : CSD-021
SWITCH UNIT (A)

NOTE :

—▭— Indicates a chip resistor.

—▮— Indicates a chip capacitor.

SWITCHES :

●TONE UNIT

S1 : TUNER SWITCH ………… ON – OFF

●SWITCH P.C.BOARD

S1 : TUNER/TAPE SELECTOR SWITCH ………… TUNER – TAPE

S2 : KEY OFF SWITCH ………… ON – OFF

●SWITCH UNIT (A)

S1 : BAND SWITCH ………… FM1–FM2–AM

●SWITCH UNIT (B)

S1 : LOUDNESS SWITCH ………… ON – OFF

S2 : LOCAL.S SWITCH ………… ON – OFF

S3 : MONO / AUTO SWITCH ………… MONO – AUTO

S4 : MS SWITCH ………… ON – OFF

●MISCELLANEOUS

S1 : FF / REW SWITCH ………… ON – OFF

The underlined indicates the switch position.

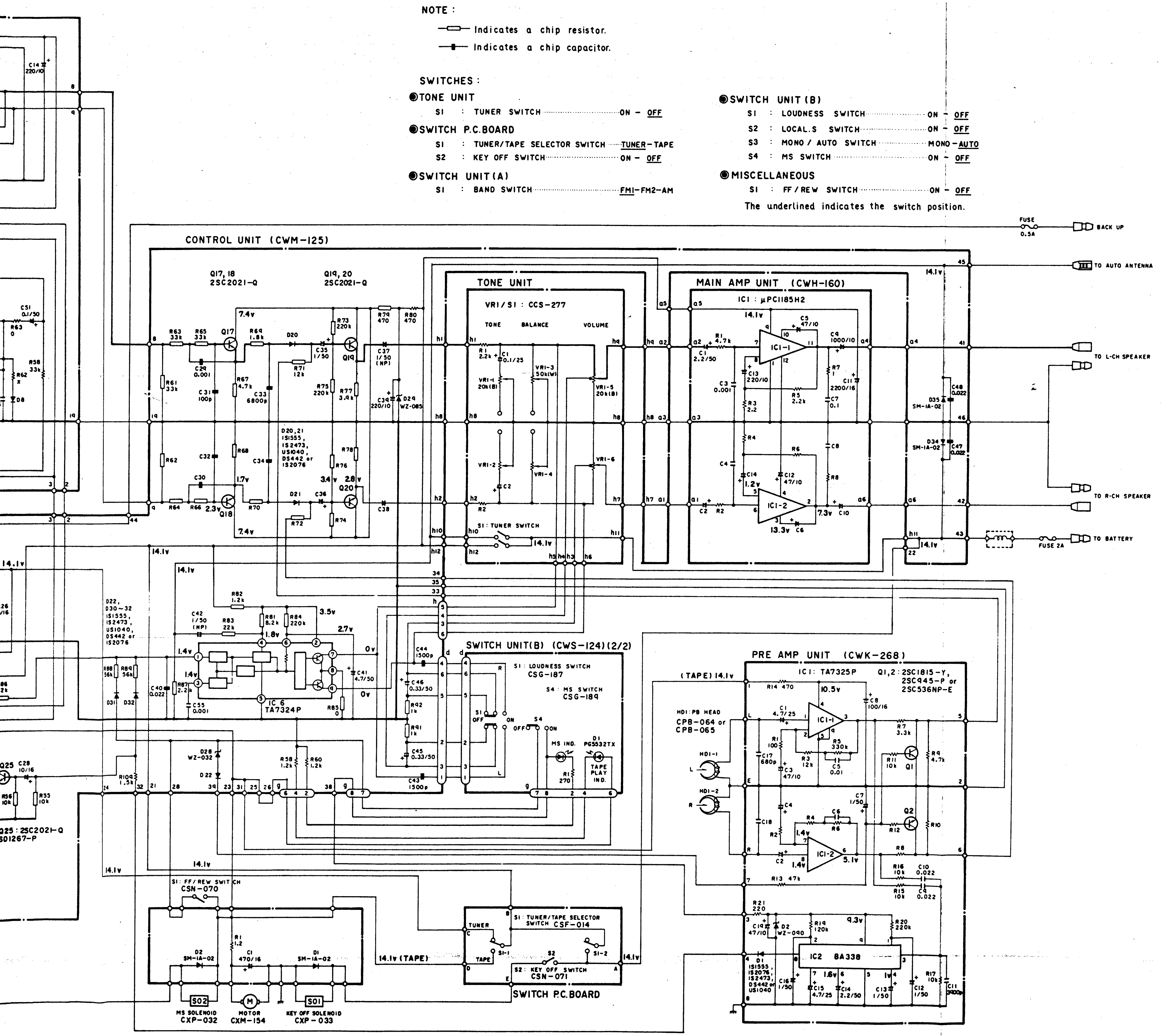
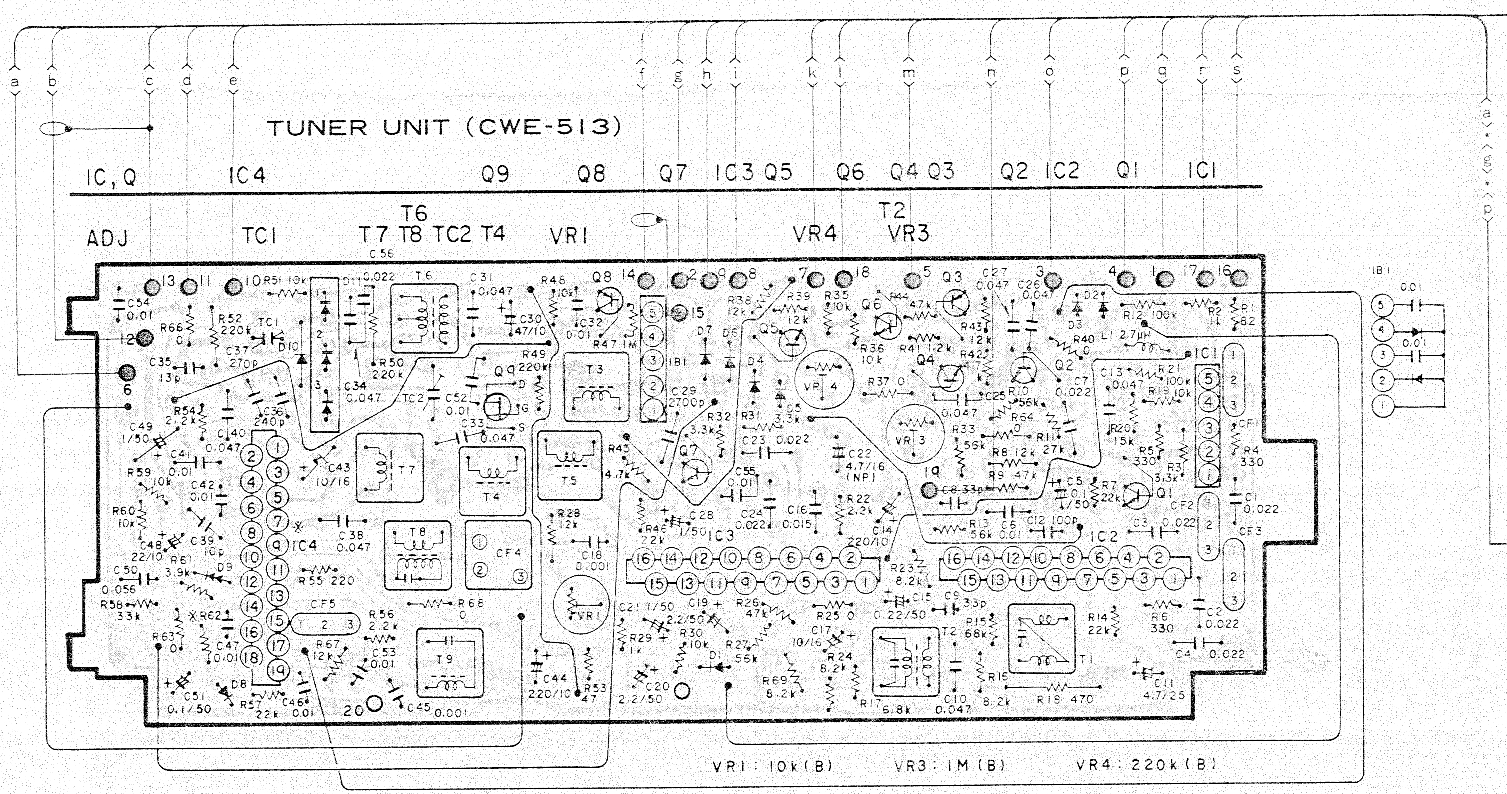

CONTROL UNIT (CWM-125)
Q17, 18 2SC2021-Q
Q19, 20 2SC2021-Q
TONE UNIT
VR1/S1 : CCS-277
TONE
BALANCE
VOLUME
S1 : TUNER SWITCH
MAIN AMP UNIT (CWH-160)
IC1 : μPC1185H2
FUSE 0.5A
BACK UP
TO AUTO ANTENNA
TO L-CH SPEAKER
TO R-CH SPEAKER
TO BATTERY
FUSE 2A
IC 6 TA7324P
D20, 21 1S1555, 1S2473, US1040, DS442 or 1S2076
D22, D30~32 1S1555, 1S2473, US1040, DS442 or 1S2076
SWITCH UNIT(B) (CWS-124)(2/2)
S1 : LOUDNESS SWITCH CSG-187
S4 : MS SWITCH CSG-189
MS IND.
D1 PG5532TX
TAPE PLAY IND.
PRE AMP UNIT (CWK-268)
IC1 : TA7325P
Q1,2 : 2SC1815-Y, 2SC945-P or 2SC536NP-E
(TAPE) 14.1v
HD1 : PB HEAD CPB-064 or CPB-065
IC2 BA338
D1 1S1555, 1S2076, 1S2473, DS442 or US1040
Q25 : 2SC2021-Q 2SD1267-P
S1 : FF/REW SWITCH CSN-070
S1 : TUNER/TAPE SELECTOR SWITCH CSF-014
S2 : KEY OFF SWITCH CSN-071
SWITCH P.C.BOARD
14.1v (TAPE)
MS SOLENOID CXP-032
MOTOR CXM-154
KEY OFF SOLENOID CXP-033

Fig.29

## 7. CONNECTION DIAGRAM (UKE-3100)

| | 12 | 13 | 14 | 15 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | 4.6V | 1.2V | 5.3V | 0V | 5.2V | 3.6V | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V |


A
B
TUNER UNIT (CWE-513)
IC, Q
IC4
Q9
Q8
Q7
IC3
Q5
Q6
Q4
Q3
Q2
IC2
Q1
IC1
ADJ
TC1
T6
T7
T8
TC2
T4
VR1
VR4
T2
VR3
IC4
IC3
IC2
T1
T9
CF5

VR1 : 10k (B)    VR3 : 1M (B)    VR4 : 220k (B)

IC1 : M5215L    IC2 : LA1140    IC3 : LA3370P    IC4 : µPC1215V
Q1, 2, 4 ~ 6 : 2SC2458-Y or 2SC2785-K    Q3 : 2SA1048-Y or 2SA1175-P    Q7 : 2SC2786-K or 2SC2668-0
Q8 : 2SA1016-F or 2SA872A-D    Q9 : 2SK163-M
D1 ~ 7, 8, 10 : 1S1555, 1S2076, 1S2473 or DS442    D9 : MV-11    D11 : KV1235

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IC1 | 1.3V | 7.2V | 8.5V | 1.3V | 0V | | | | | | | | | | | |
| IC2 | 2.5V | 2.5V | 2.5V | 0V | 2V | 0.7V | 4.5V | 4.9V | 4.7V | 0V | 4.9V | | 4.9V | 2.6V | 0.2V | 4V |
| IC3 | 8.5V | 2.3V | 2.9V | 2.4V | 4.4V | 4.4V | 0.1V | 0V | 0V | | 2.2V | 2.2V | 1.5V | 2.2V | 2.2V | |
| IC4 | 0V | 7.9V | | 0V | 2.5V | 1.4V | 2.5V | 6.2V | 8.5V | 0V | 0.7V | 1.6V | 4.6V | 2.3V | 7.1V | 8.5V |

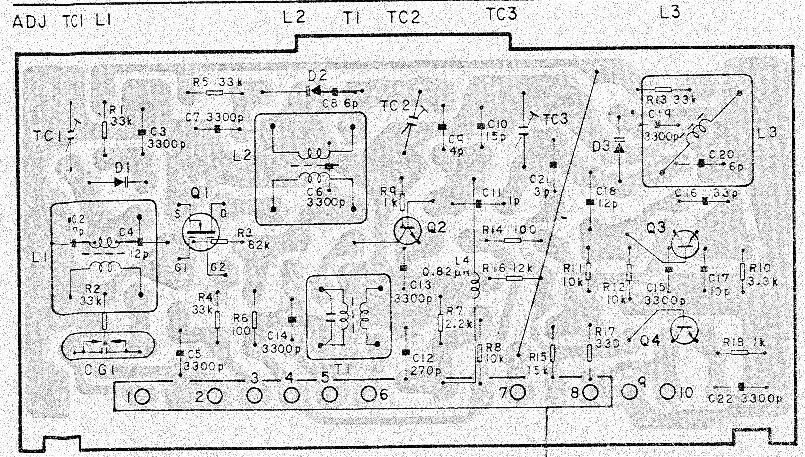
| | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 |
|---|---|---|---|---|---|---|---|---|
| E | 0V | 0V | | 3.3V | 0V | 0V | 0V | 7.9V |
| C | 0.7V | | | 7.9V | | | | |
| B | | | 7.9V | 3.6V | | | | 7.9V |

| | Q9 |
|---|---|
| G | 0.7V |
| D | 7.9V |
| S | 0.7V |

| | Q1 | Q2 | Q3 | Q4 | Q6 | Q7 | Q8 | Q9 | Q10 | Q11 | Q12 | Q13 | Q14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | 0V | 13.9V | 0V | 11.3V | 0V | 1.1V | 0V | 0V | 0V | | 4.4V | 4.5V | 4.5V |
| C | | | | | | 11.3V | | | | 8.7V | 5.1V | 3.6V | 5.2V |
| B | | 4.5V | 3.1V | 11V | 1.2V | | 1.1V | | | | | 0.7V | |

| | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 | Q21 | Q22 | Q23 | Q24 | Q26 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E | 4.5V | 3.3V | 1.7V | 1.7V | 2.8V | 2.8V | 8.7V | 8.7V | 0V | 6.0V | 0V |
| C | 3.6V | 8.6V | 7.4V | 7.4V | 7.4V | 7.4V | 8.6V | 8.5V | | | |
| B | | | 2.3V | 2.3V | 3.4V | 3.4V | | | | | |

| | Q5 |
|---|---|
| G | 1.2V |
| D | 11.3V |
| S | 1.2V |

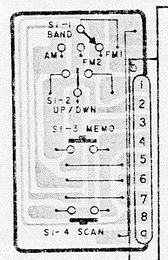

C
D
FRONT END (CWB-104)
Q
Q1
Q2
Q3 Q4
ADJ
TC1
L1
L2
T1
TC2
TC3
L3
CG1

Q1 : SD306PA or P001    Q2 : 2SC1674-K or 2SC2786-K    D1 ~ 3 : ITT-310PE, PF
Q3 : 2SC1675-M or 2SC2787-M    Q4 : 2SC1674-K or 2SC2786-K

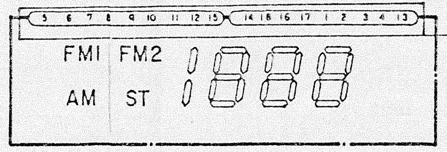
| | Q1 |
|---|---|
| G1 | 2.3V |
| G2 | 5.8V |
| D | 7.7V |
| S | 0V |

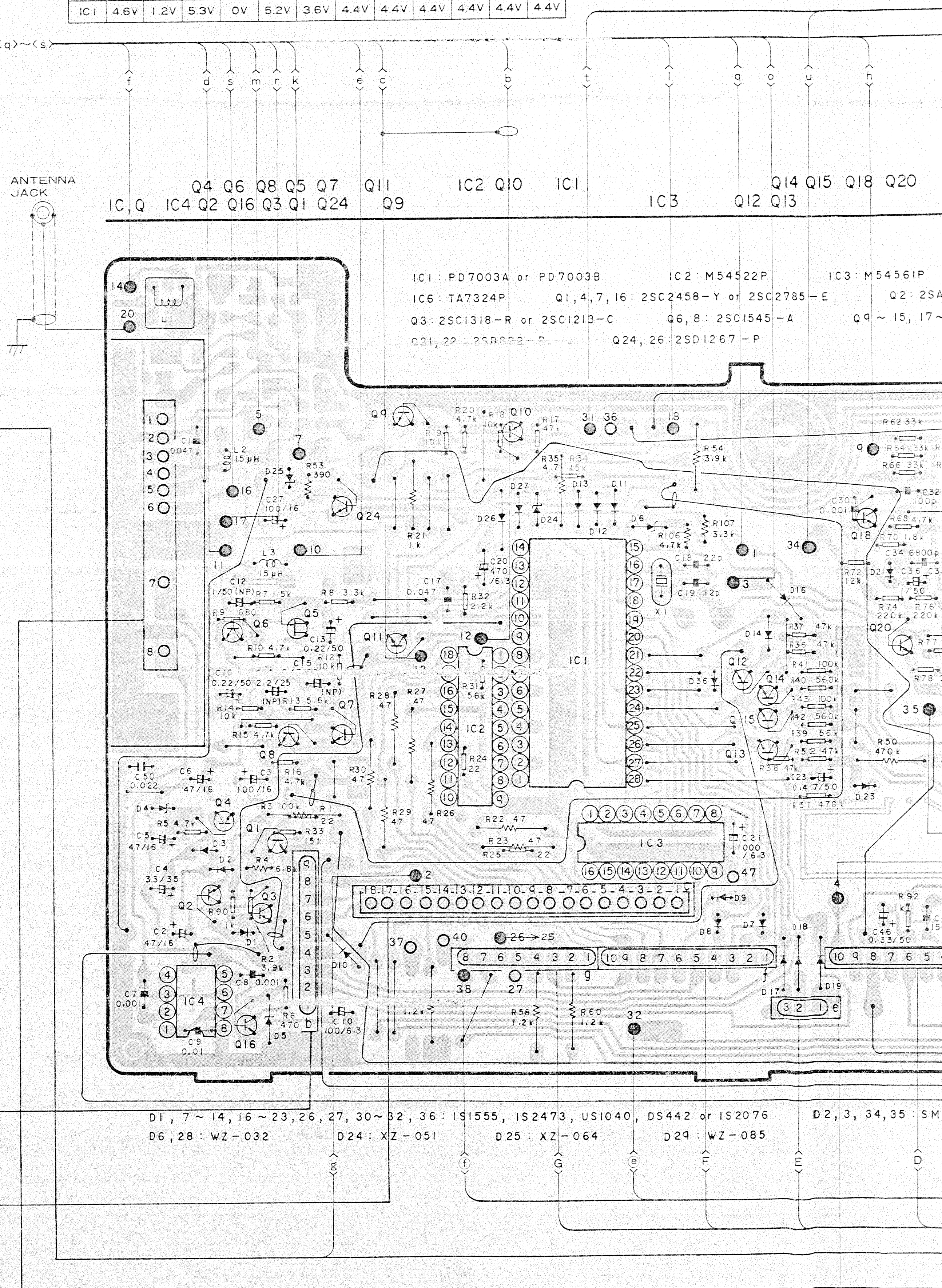
| | Q2 | Q3 | Q4 |
|---|---|---|---|
| E | 0.8V | 3.2V | 2.7V |
| C | 8.5V | 8.1V | 7.2V |
| B | 1.5V | 3.9V | 3.4V |

SWITCH UNIT (A)


S1-1 BAND
AM
FM1
FM2
S1-2 UP/DOWN
S1-3 MEMO
S1-4 SCAN

DISPLAY (CXC-490)


FM1
FM2
AM
ST


ANTENNA JACK
IC, Q
IC4
Q2
Q4
Q6
Q16
Q8
Q3
Q5
Q1
Q7
Q24
Q11
Q9
IC2
Q10
IC1
IC3
Q12
Q13
Q14
Q15
Q18
Q20

IC1 : PD7003A or PD7003B    IC2 : M54522P    IC3 : M54561P
IC6 : TA7324P    Q1, 4, 7, 16 : 2SC2458-Y or 2SC2785-E    Q2 : 2SA
Q3 : 2SC1318-R or 2SC1213-C    Q6, 8 : 2SC1545-A    Q9 ~ 15, 17 ~
Q21, 22 : 2SB822-P    Q24, 26 : 2SD1267-P

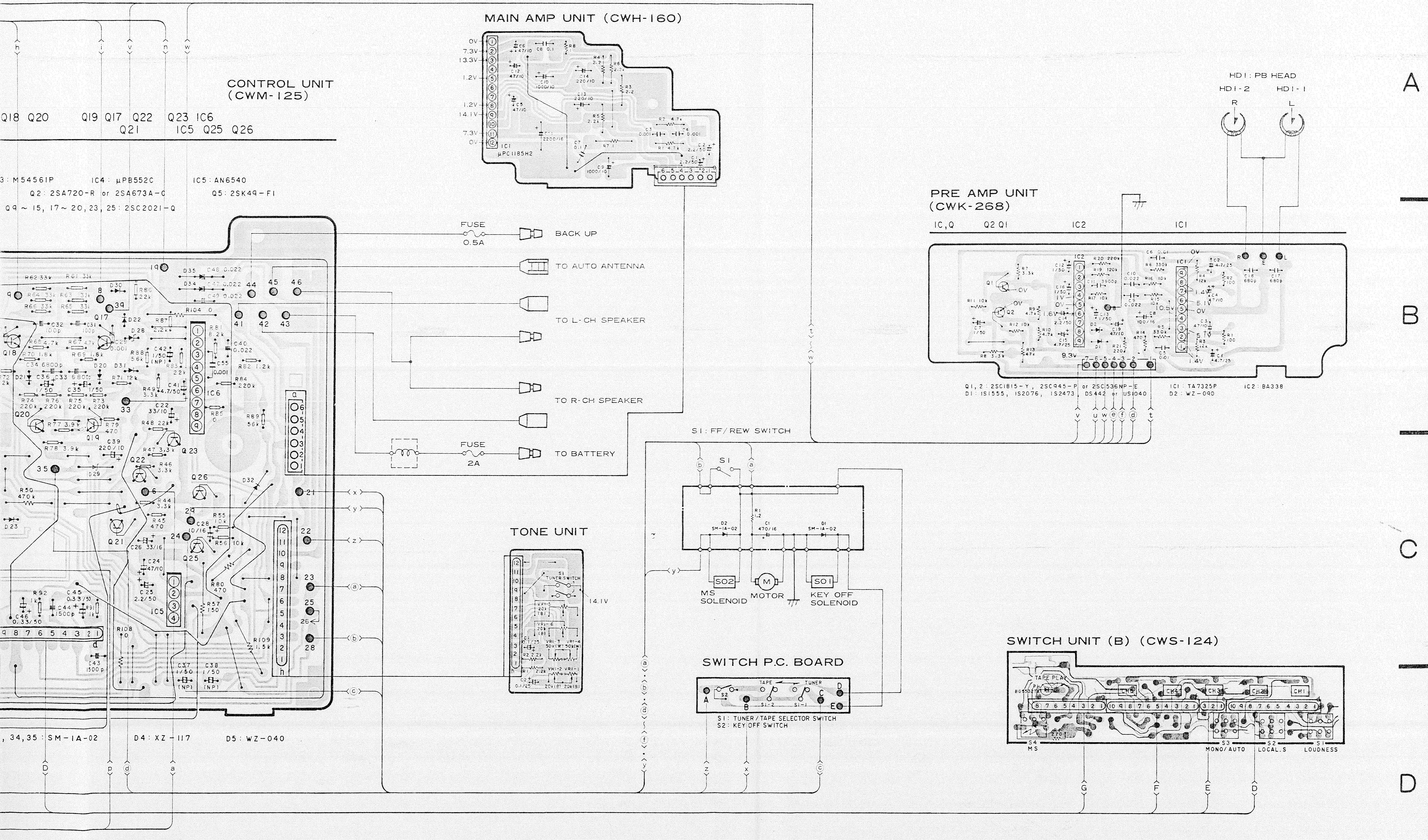
D1, 7 ~ 14, 16 ~ 23, 26, 27, 30 ~ 32, 36 : 1S1555, 1S2473, US1040, DS442 or 1S2076    D2, 3, 34, 35 : SM
D6, 28 : WZ-032    D24 : XZ-051    D25 : XZ-064    D29 : WZ-085

| | 9 |
|---|---|
| IC2 | 0V |

| | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|
| IC3 | 4.4V | 4.4V | 4.4V | 4.4V | 4.4V | 0V |

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| IC4 | 3.3V | 2.6V | 0V | 0V | 1.9V | 0V | 3.3V | 0V |

| | 1 | 2 |
|---|---|---|
| IC5 | 14.1V | 0V |


MAIN AMP UNIT (CWH-160)
IC1 µPC1185H2
CONTROL UNIT (CWM-125)
Q18 Q20 Q19 Q17 Q22 Q21 Q23 IC6 IC5 Q25 Q26
3: M54561P IC4: µPB552C IC5: AN6540
Q2: 2SA720-R or 2SA673A-0 Q5: 2SK49-FI
Q9 ~ 15, 17 ~ 20, 23, 25: 2SC2021-Q
, 34, 35: SM-1A-02 D4: XZ-117 D5: WZ-040
FUSE 0.5A
BACK UP
TO AUTO ANTENNA
TO L-CH SPEAKER
TO R-CH SPEAKER
FUSE 2A
TO BATTERY
HD1: PB HEAD
HD1-2 HD1-1
R L
PRE AMP UNIT (CWK-268)
IC,Q Q2 Q1 IC2 IC1
Q1, 2: 2SC1815-Y, 2SC945-P or 2SC536NP-E IC1: TA7325P IC2: BA338
D1: 1S1555, 1S2076, 1S2473, DS442 or US1040 D2: WZ-090
S1: FF/REW SWITCH
S1
MS SOLENOID
MOTOR
KEY OFF SOLENOID
SO2
SO1
TONE UNIT
TUNER SWITCH
14.1V
SWITCH P.C. BOARD
TAPE TUNER
S1: TUNER/TAPE SELECTOR SWITCH
S2: KEY OFF SWITCH
SWITCH UNIT (B) (CWS-124)
TAPE PLAY
S4 MS
S3 MONO/AUTO
S2 LOCAL.S
S1 LOUDNESS
A
B
C
D

|  | 1 | 2 | 4 |
|---|---|---|---|
|  | 14.1V | 0V | 8.7V |

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
|---|---|---|---|---|---|---|---|---|
| IC6 | 1.4V | 3.5V | 1.4V | 1.8V | 0V | 2.7V | 0V | 0V |

Fig. 30

## 8. CASSETTE MECHANISM EXPLODED VIEW (UKE-7100)

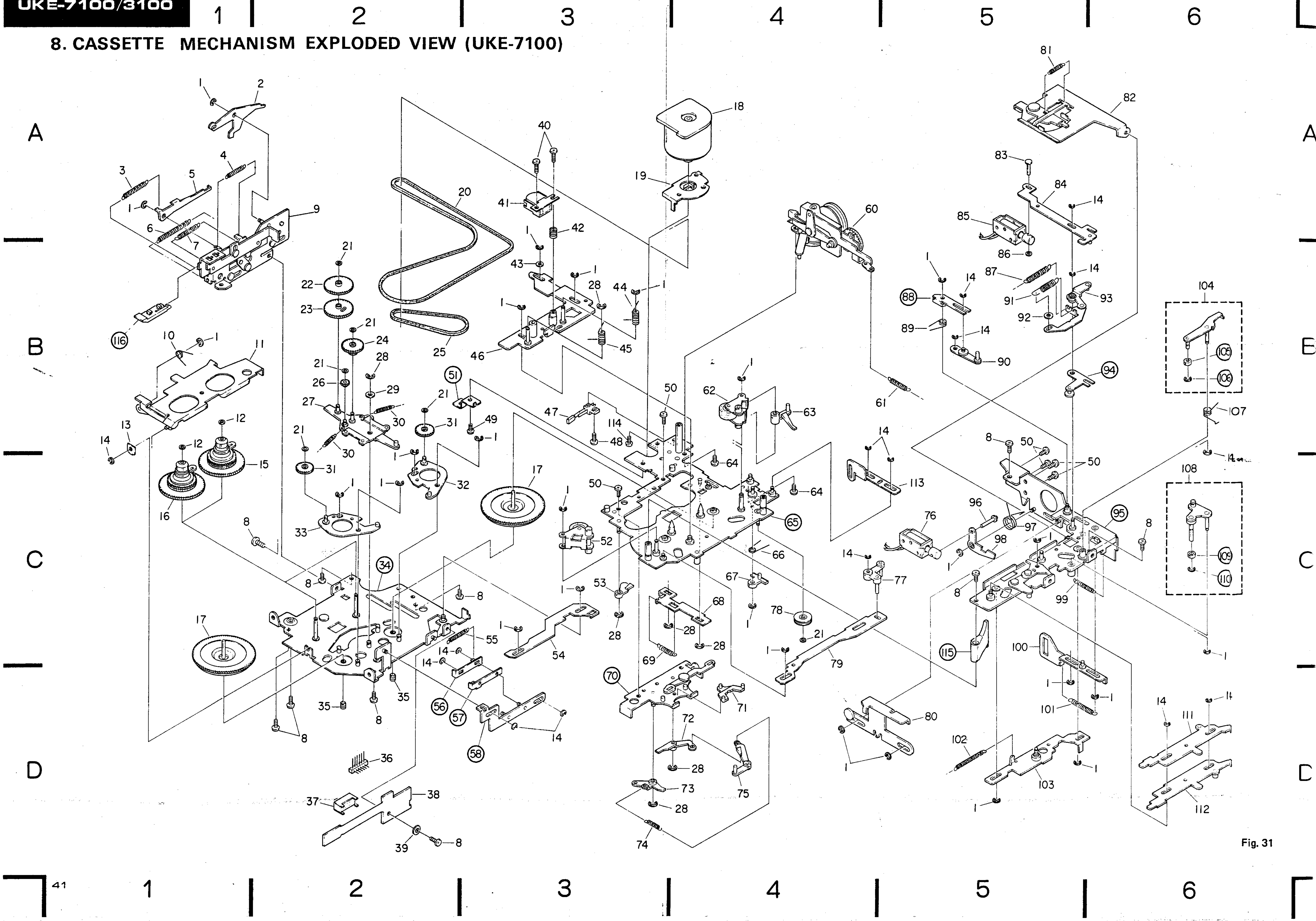

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Fig. 31

- **Parts List**

*NOTE*

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  *★★: GENERALLY MOVES FASTER THAN ★.*
  *This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*
- *Parts whose parts numbers are omitted are subject to being not supplied.*

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | YE20FUC | Washer |
| | 2. | CNE-972 | Arm |
| | 3. | CBH-626 | Spring |
| | 4. | CBH-625 | Spring |
| | 5. | CXC-463 | Arm Unit |
| | 6. | CBH-628 | Spring |
| | 7. | CBH-627 | Spring |
| | 8. | CBA-097 | Spring |
| | 9. | CXC-465 | Side Frame Unit |
| | 10. | CBH-662 | Spring |
| | 11. | CXC-239 | Holder Unit |
| | 12. | CBF-045 | Washer |
| | 13. | CNF-019 | Holder |
| | 14. | YE15FUC | Washer |
| ★★ | 15. | CXC-178 | Reel Unit |
| ★★ | 16. | CXC-177 | Reel Unit |
| | 17. | CNR-138 | Flywheel |
| ★★ | 18. | CXM-104 | Motor |
| | 19. | CNF-040 | Spacer |
| ★★ | 20. | CNT-091 | Belt |
| | 21. | CBF-126 | Washer |
| | 22. | CNW-169 | Gear |
| | 23. | CNW-170 | Gear |
| | 24. | CNW-168 | Gear |
| ★★ | 25. | CNT-092 | Belt |
| | 26. | CNW-260 | Gear |
| | 27. | CXC-316 | Arm Unit |
| | 28. | YE25FUC | Washer |
| | 29. | CBE-104 | Washer |
| | 30. | CBH-611 | Spring |
| | 31. | CNW-167 | Gear |
| | 32. | CXC-219 | Arm Unit |
| | 33. | CXC-217 | Arm Unit |
| | 34. | | Holder Unit |
| | 35. | CNW-229 | Screw |
| | 36. | CKS-070 | Plug |
| ★★ | 37. | CSH-070 | Switch (FWD/REV) |
| | 38. | CNP-925 | P.C. Board |
| | 39. | WB02FMC | Washer |
| | 40. | PMS20P060FMC | Screw |
| ★★ | 41. | CPB-066 | Head |
| | 42. | CBH-198 | Spring |
| | 43. | CNF-091 | Washer |
| | 44. | CBH-614 | Spring |
| | 45. | CBH-613 | Spring |
| | 46. | CXC-215 | Head Base Unit |
| ★★ | 47. | CWS-108 | Switch Unit (FF/REW) |
| | 48. | BMZ20P025FMC | Screw |
| | 49. | PMS26P040FMC | Screw |
| | 50. | CBA-098 | Screw |
| | 51. | | Bracket |
| ★★ | 52. | CXC-180 | Roller Unit |
| | 53. | CNW-190 | Arm |
| | 54. | CNE-938 | Cam |
| | 55. | CBH-612 | Spring |
| | 56. | | Lever |
| | 57. | | Lever |
| | 58. | | Lever Unit |
| | 59. | VACANT | |
| | 60. | CXC-242 | Gear Unit |
| | 61. | CBH-624 | Spring |
| ★★ | 62. | CXC-179 | Roller Unit |
| | 63. | CNW-197 | Arm |
| | 64. | BMZ23P040FMC | Screw |
| | 65. | | Chassis Unit |
| | 66. | CBH-621 | Spring |
| | 67. | CNW-230 | Holder |
| | 68. | CNE-975 | Lever |
| | 69. | CBH-609 | Spring |
| | 70. | | Holder |
| | 71. | CNW-325 | Arm |
| | 72. | CNW-192 | Arm |
| | 73. | CNW-189 | Arm |
| | 74. | CBH-610 | Spring |
| | 75. | CNW-191 | Arm |
| ★ | 76. | CXP-035 | Solenoid |
| | 77. | CXC-222 | Arm Unit |
| | 78. | CLB-052 | Pulley |
| | 79. | CNE-931 | Cam |
| | 80. | CXC-238 | Lever Unit |
| | 81. | CBH-634 | Spring |
| | 82. | CXC-244 | Holder Unit |
| | 83. | CLB-122 | Shaft |
| | 84. | CXC-233 | Lever Unit |
| ★ | 85. | CXP-034 | Solenoid |
| | 86. | HBF-145 | Washer |
| | 87. | CBH-618 | Spring |
| | 88. | | Arm |
| | 89. | CBH-623 | Spring |
| | 90. | CXC-236 | Lever Unit |
| | 91. | CBH-615 | Spring |
| | 92. | WA33F060M050 | Washer |
| | 93. | CXC-232 | Arm Unit |
| | 94. | | Arm Unit |
| | 95. | | Sub Chassis Unit |
| | 96. | CLB-139 | Shaft |
| | 97. | CBH-633 | Spring |
| | 98. | CXC-231 | Arm Unit |
| | 99. | CBH-663 | Spring |
| | 100. | CXC-482 | Lever Unit |
| | 101. | CBH-617 | Spring |
| | 102. | CBH-619 | Spring |
| | 103. | CXC-237 | Cam Unit |
| | 104. | CXC-229 | Arm Unit |
| | 105. | | Roller |
| | 106. | | Washer |
| | 107. | CBH-622 | Spring |
| | 108. | CXC-230 | Arm Unit |
| | 109. | | Roller |
| | 110. | | Washer |
| | 111. | CXC-227 | Lever Unit |
| | 112. | CXC-228 | Lever Unit |
| | 113. | CNE-939 | Lever |
| | 114. | PMS26P030FMC | Screw |
| | 115. | | Guide |
| | 116. | | Guide |

## 9. CASSETTE MECHANISM EXPLODED VIEW (UKE-3100)

- **Parts List**

| Mark | No. | Part No. | Description |
|---|---|---|---|
| ★★ | 1. | CXM-154 | Motor |
| | 2. | CBH-628 | Spring |
| | 3. | YE20FUC | Washer |
| | 4. | CBH-626 | Spring |
| | 5. | CXC-463 | Arm Unit |
| | 6. | CBH-627 | Spring |
| | 7. | CBH-625 | Spring |
| | 8. | CNE-972 | Arm |
| | 9. | BMZ23P030FMC | Screw |
| | 10. | | Frame Unit |
| ★★ | 11. | CNT-096 | Belt |
| | 12. | CNW-205 | Pulley |
| | 13. | | Holder |
| | 14. | CBF-135 | Washer |
| | 15. | YE15FUC | Washer |
| | 16. | CXC-302 | Holder Unit |
| | 17. | CBH-640 | Spring |
| | 18. | YE25FUC | Washer |
| | 19. | | Lever |
| | 20. | BMZ20P040FMC | Screw |
| | 21. | CXC-328 | Gear Unit |
| | 22. | CNW-206 | Gear |
| | 23. | | Spacer |
| | 24. | CBH-638 | Spring |
| ★★ | 25. | CXC-289 | Roller Unit |
| | 26. | | Roller |
| | 27. | PMS26P040FUC | Screw |
| | 28. | CNW-210 | Gear |
| | 29. | | Chassis Unit |
| | 30. | CBH-635 | Spring |
| | 31. | CBH-636 | Spring |
| | 32. | CNW-211 | Gear |
| | 33. | CNW-212 | Gear |
| | 34. | CNW-216 | Gear |
| | 35. | CBF-045 | Washer |
| ★★ | 36. | CXC-256 | Reel Unit |
| ★★ | 37. | CXC-257 | Reel Unit |
| | 38. | CNR-148 | Flywheel |
| ★★ | 39. | CNT-095 | Belt |
| | 40. | CXC-290 | Holder Unit |
| | 41. | CMZ23P030FMC | Screw |
| | 42. | CNW-229 | Screw |
| | 43. | CNW-250 | Arm |
| | 44. | BMZ20P080FMC | Screw |
| ★★ | 45. | CPB-064 or<br>CPB-065 | Head |
| | 46. | CNV-301 | Rubber |
| | 47. | CBH-198 | Spring |
| | 48. | CNL-010 or<br>CNL-011 | P.C. Board |
| | 49. | | Plug |
| ★★ | 50. | CSN-070 | Switch (FF/REW) |
| | 51. | | P.C. Board |
| | 52. | BMZ20P030FMC | Screw |
| | 53. | CBH-648 | Spring |
| | 54. | CXC-296 | Arm Unit |
| ★ | 55. | CXP-033 | Solenoid |
| ★ | 56. | CXP-032 | Solenoid |
| | 57. | | Lever Unit |
| | 58. | | Lever Unit |

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 59. | CBH-645 | Spring |
| | 60. | CBH-634 | Spring |
| | 61. | CXC-301 | Holder Unit |
| | 62. | | Lever Unit |
| | 63. | CBH-655 | Spring |
| | 64. | | Lever Unit |
| | 65. | | Arm |
| | 66. | CBH-641 | Spring |
| | 67. | CXC-509 | Arm Unit |
| | 68. | PMZ26P160FMC | Screw |
| | 69. | | Lever |
| | 70. | CXC-459 | Arm Unit |
| | 71. | CMZ26P040FMC | Screw |
| | 72. | CBH-642 | Spring |
| | 73. | CBH-677 | Spring |
| | 74. | BMZ20P025FMC | Screw |
| | 75. | CBH-679 | Spring |
| | 76. | | Lever |
| | 77. | CBH-649 | Spring |
| | 78. | BMZ26P100FMC | Screw |
| | 79. | | Lever |
| | 80. | | Lever |
| | 81. | CXC-297 | Arm Unit |
| | 82. | CBH-647 | Spring |
| | 83. | CBH-637 | Spring |
| | 84. | CXC-456 | Sub Chassis Unit |
| | 85. | CXC-254 | Gear Unit |
| | 86. | | Guide |
| | 87. | CBH-678 | Spring |
| | 88. | | Bracket |
| | 89. | | Arm Unit |
| | 90. | CBH-660 | Spring |
| | 91. | CBF-046 | Washer |
| | 92. | | Guide |
| | 93. | CBH-675 | Spring |
| | 94. | | Arm Unit |
| | 95. | | Arm Unit |
| | 96. | BMZ26P040FMC | Screw |

- **Cassette Mechanism (UKE-3100)**

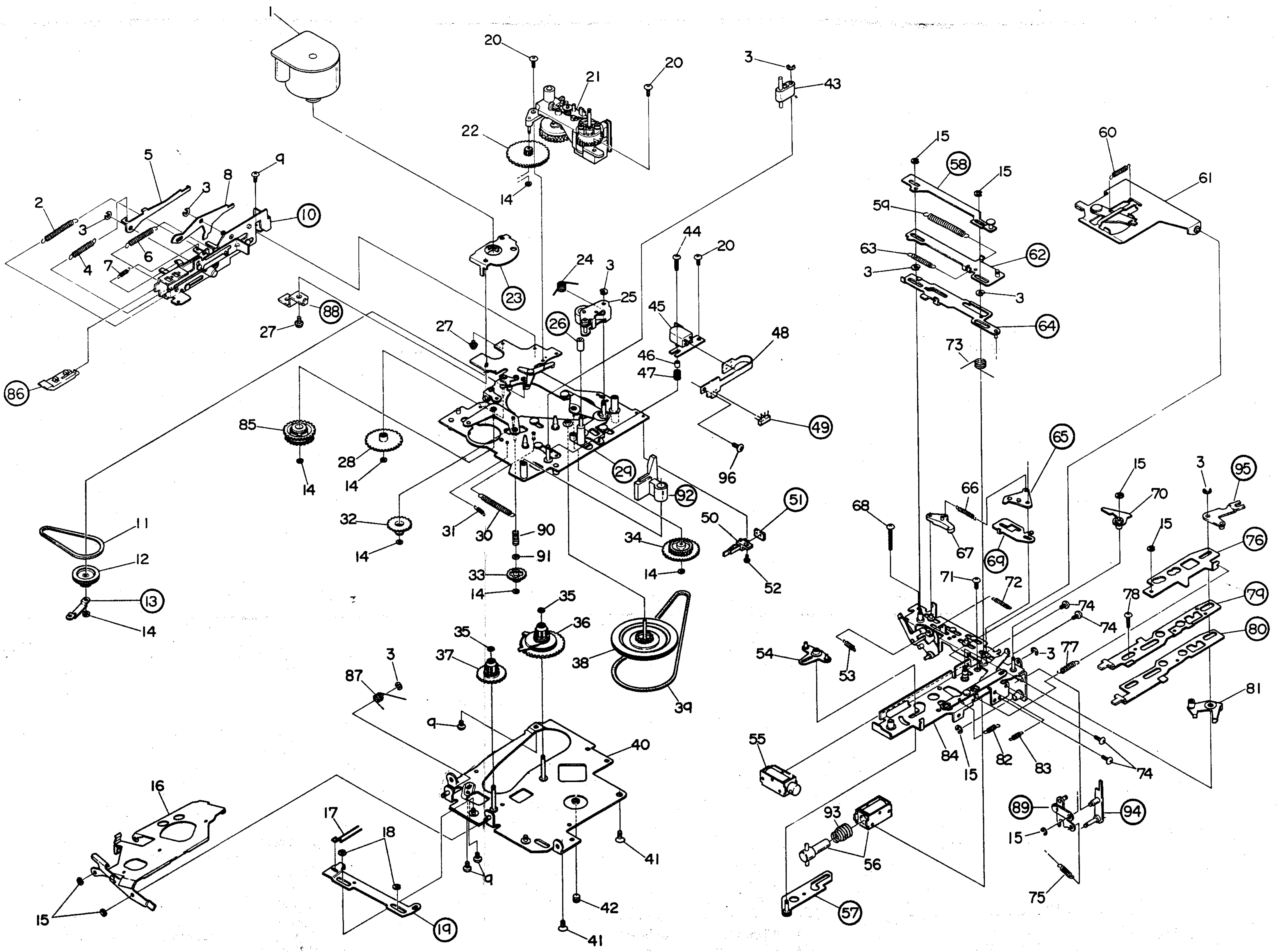
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Fig. 32

## 10. CABINET EXPLODED VIEW

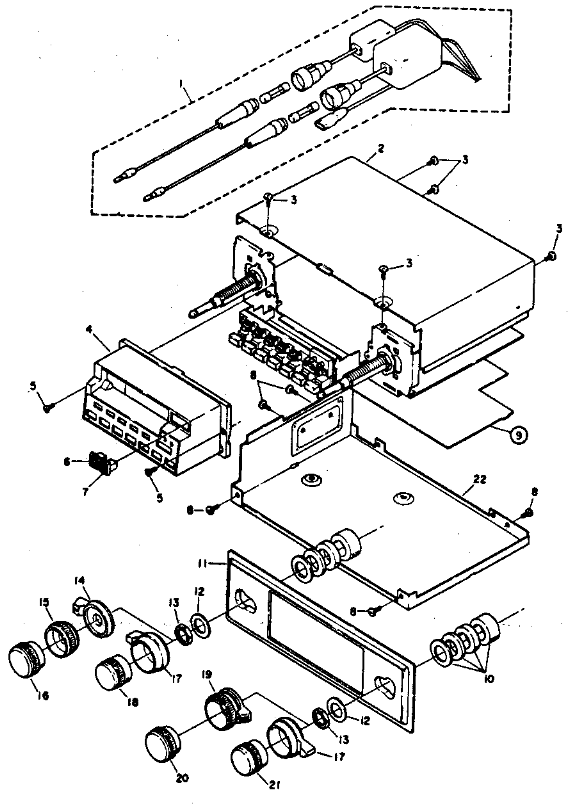

Fig. 33

- **Parts List**

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | CDF-039 | Cord |
| | 2. | CXC-517 | Case Unit |
| | 3. | BMZ26P030FMC | Screw |
| | 4. | CXC-521 | Grille Unit (UKE-7100) |
| | | CXC-522 | Grille Unit (UKE-3100) |
| | 5. | CMZ26P050FMC | Screw |
| ★ | 6. | CAC-432 | Button |
| ★ | 7. | CAC-433 | Button |
| | 8. | BMZ26P040FMC | Screw |
| | 9. | | Insulator |
| | 10. | CNV-769 | Washer |
| | 11. | CEA-599 | Panel (UKE-7100) |
| | | CEA-600 | Panel (UKE-3100) |
| | 12. | CND-646 | Spacer |
| | 13. | CBN-028 | Nut |
| ★ | 14. | CAA-377 | Knob (Bass) (UKE-7100) |
| ★ | 15. | CAA-376 | Knob (Treble) (UKE-7100) |
| ★ | 16. | CAA-375 | Knob (Volume) (UKE-7100) |
| ★ | 17. | CAA-387 | Knob (Tone) (UKE-3100) |
| ★ | 18. | CAA-379 | Knob (Volume) (UKE-3100) |
| ★ | 19. | CAA-378 | Knob (Band) (UKE-7100) |
| ★ | 20. | CAA-386 | Knob (Tuning) (UKE-7100) |
| ★ | 21. | CAA-385 | Knob (Tuning) (UKE-3100) |
| | 22. | CNB-665 | Case |

## 11. CHASSIS EXPLODED VIEW

- **Parts List**

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | BMZ26P060FMC | Screw |
| | 2. | | Bracket (UKE-7100) |
| | | | Bracket (UKE-3100) |
| | 3. | PMS26P040FMC | Screw |
| | 4. | CBH-680 | Spring |
| | 5. | YE15FUC | Washer |
| | 6. | | Arm |
| | 7. | CNP-926 | P.C. Board |
| | 8. | CBA-106 | Screw |
| | 9. | BMZ23P025FMC | Screw |

| Mark | No. | Part No. | Description |
|---|---|---|---|
| ★★ | 10. | CSF-014 | Switch (Power) |
| | 11. | | Cover |
| | 12. | BMZ20P040FMC | Screw |
| ★★ | 13. | CSN-071 | Switch (Key Off) |
| | 14. | | Bracket Unit |
| | 15. | CXC-495 | Cassette Mechanism Assy (UKE-7100) |
| | | CXC-499 | Cassette Mechanism Assy (UKE-3100) |
| | 16. | BMZ26P040FMC | Screw |
| | 17. | | Insulator |
| ★ | 18. | BG4524K | LED (UKE-7100) |
| | 19. | BMN20P040FMC | Screw |
| ★ | 20. | BG4524K | LED (UKE-7100) |
| ★ | | PG5532TX | LED (UKE-3100) |
| | 21. | | Rubber (UKE-7100) |
| | | | Rubber (UKE-3100) |
| ★ | 22. | CAC-430 | Button (UKE-7100) |
| ★ | 23. | CAC-429 | Button |
| ★ | 24. | CAC-399 | Button (UKE-7100) |
| | 25. | BMZ20P080FMC | Screw |
| | 26. | CNW-348 | Housing (UKE-7100) |
| | | CNW-349 | Housing (UKE-3100) |
| ★★ | 27. | CSG-187 | Switch (Loud, Loc.s, Mono) |
| ★★ | 28. | CSG-187 | Switch (Clock) (UKE-7100) |
| ★★ | 29. | CSG-190 | Switch (70μs) (UKE-7100) |
| ★★ | 30. | CSG-179 | Switch (NR) (UKE-7100) |
| ★★ | 31. | CSG-189 | Switch (MS) |
| ★ | 32. | CAC-401 | Button (Loud, Loc.s, Mono) |
| ★ | 33. | CAC-401 | Button (Clock) (UKE-7100) |
| ★ | 34. | CAC-400 | Button (70μs, NR) (UKE-7100) |
| ★ | 35. | CAC-400 | Button (MS) |
| | 36. | | Cassette Mechanism Unit |
| | 37. | | Bracket |
| | 38. | | Cover (UKE-3100) |
| | 39. | BMZ23P025FMC | Screw (UKE-3100) |
| | 40. | BMZ26P060FMC | Screw |
| ★ | 41. | CXC-490 | Display |
| | 42. | CAT-128 | Door (UKE-7100) |
| | | CAT-129 | Door (UKE-3100) |
| | 43. | CBH-683 | Spring |
| | 44. | CNM-788 | Cushion |
| | 45. | BMZ20P030FMC | Screw |
| | 46. | | Shield |
| | 47. | | Holder |
| | 48. | BTN20P060FMC | Screw |
| | 49. | | P.C. Board |
| | 50. | CDF-048 | Connector (3P) |
| | 51. | CDF-043 | Connector (10P) |
| | 52. | CDF-047 | Connector (8P) |
| | 53. | CWS-123 | Switch Unit (B) (UKE-7100) |
| | | CWS-124 | Switch Unit (B) (UKE-3100) |
| | 54. | | Heat Sink Unit |
| | 55. | BMZ26P080FMC | Screw |
| ★★ | 56. | μPC1185H2 | IC |
| | 57. | | Holder |
| | 58. | CWH-160 | Main Amp Unit |
| | 59. | CDF-041 | Connector (6P) (UKE-7100) |
| | 60. | | Connector |
| | 61. | | Insulator |
| | 62. | CNL-148 | P.C. Board (UKE-3100) |
| | 63. | CDF-045 | Connector |
| ★★ | 64. | CCS-277 | Volume/Switch (UKE-3100) |
| ★★ | 65. | CCS-263 | Volume/Switch (UKE-7100) |
| | 66. | CWG-101 | Bass/Treble Unit (UKE-7100) |
| | 67. | CBE-084 | Spacer |
| | 68. | | Holder |
| | 69. | CBN-028 | Nut |
| | 70. | CWE-512 | Tuner Unit (UKE-7100) |
| | | CWE-513 | Tuner Unit (UKE-3100) |
| | 71. | | Insulator |
| | 72. | CDF-040 | Cord |
| | 73. | CDH-074 | Antenna Cable |
| | 74. | WH26FNi | Washer |
| | 75. | BMZ26P050FNi | Screw |
| ★★ | 76. | CSD-021 | Switch (Band, Tuning) |
| | 77. | CNL-149 | P.C. Board |
| | 78. | CDF-044 | Connector (9P) |
| | 79. | | Frame |
| | 80. | CDF-046 | Connector (7P) |
| | 81. | CKS-227 | Connector (7P) |
| | 82. | CDF-042 | Connector (3P) (UKE-3100) |
| | 83. | | Holder |
| | 84. | BMZ30P060FMC | Screw |
| ★★ | 85. | 2SD1267 | Transistor |
| ★★ | 86. | AN6540 | Transistor |
| ★★ | 87. | CNM-558 | Insulator |
| | 88. | | Heat Sink |
| | 89. | CKS-226 | Plug (6P) |
| | 90. | CNF-404 | Shield |
| | 91. | CWK-267 | Pre Dolby NR Unit (UKE-7100) |
| | | CWK-268 | Pre Amp Unit (UKE-3100) |
| | 92. | CNM-792 | Insulator |
| | 93. | | Holder |
| | 94. | | Case |
| | 95. | CKS-190 | Plug (3P) (UKE-3100) |
| | 96. | CKS-191 | Plug (6P) (UKE-3100) |
| | 97. | CKS-151 | Plug (8P) (UKE-7100) |
| | 98. | | Case |
| | 99. | CWB-090 | Front End (UKE-7100) |
| | | CWB-104 | Front End (UKE-3100) |
| | 100. | | Heat Sink |
| | 101. | CWM-124 | Control Unit (UKE-7100) |
| | | CWM-125 | Control Unit (UKE-3100) |
| | 102. | CXC-520 | Shield Unit |
| | 103. | CXC-518 | Shield Unit |

- **Chassis**

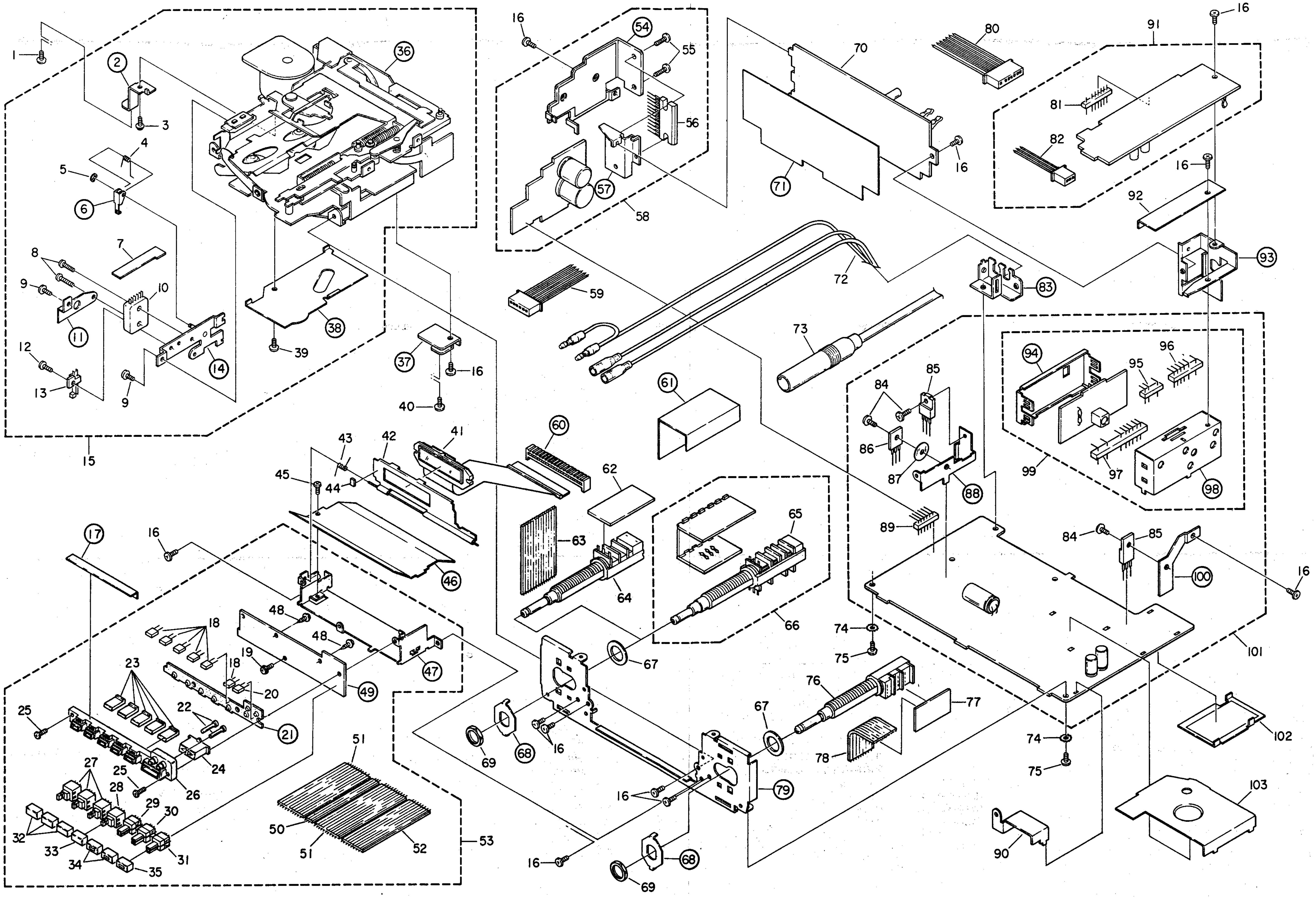
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Fig. 34

# 12. ELECTRICAL PARTS LIST

*NOTE:*

*When ordering resistors, first convert resistance values into code form as shown in the following examples.*

*Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).*

*560Ω 56 × $10^1$ 561. . . . . . . . . . .RD1/4PS $\boxed{5}\boxed{6}\boxed{1}$ J*
*47kΩ 47 × $10^3$ 473. . . . . . . . . . .RD1/4PS $\boxed{4}\boxed{7}\boxed{3}$ J*
*0.5Ω 0R5 . . . . . . . . . . . . . . . . . . .RN2H $\boxed{0}\boxed{R}\boxed{5}$ K*
*1Ω 010. . . . . . . . . . . . . . . . . . . .RS1P $\boxed{0}\boxed{1}\boxed{0}$ K*

*Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).*

*5.62kΩ 562 × $10^1$ . . . . . . . . . . . . . . .RN1/4SR $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F*

- *For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★*
  *★ ★: GENERALLY MOVES FASTER THAN ★*
  *This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*
- *Parts whose parts numbers are omitted are subject to being not supplied.*

## Control Unit (CWM-124) (UKE-7100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | PD7003A or<br>PD7003B | IC1 | |
| ★★ | M54522P | IC2 | |
| ★★ | M54561P | IC3 | |
| ★★ | μPB552C | IC4 | |
| ★★ | AN6540 | IC5 | |
| ★★ | TA7324P | IC6 | |
| ★★ | 2SC2458 or<br>2SC2785 | Q1, Q4, Q7, Q16, Q27, Q28, Q30 | |
| ★★ | 2SA720 or<br>2SA673A | Q2 | |
| ★★ | 2SC1318 or<br>2SC1213 | Q3 | |
| ★★ | 2SK49-F1 | Q5 | |
| ★★ | 2SC1545 | Q6, Q8 | |
| ★★ | 2SC2021 | Q9–Q15, Q17–Q20, Q23, Q25 | |
| ★★ | 2SB822 | Q21, Q22 | |
| ★★ | 2SD1267 | Q24, Q26 | |
| ★★ | 2SA1048-GR or<br>2SA1175-P | Q29 | |
| ★ | 1S1555 or<br>1S2473 or<br>US1040 or<br>DS442 or<br>1S2076 | D1, D7–D23, D26, D27, D30–D33, D36 | |
| ★ | SM-1A-02 | D2, D3, D34, D35 | |
| ★ | XZ-117 | D4 | |
| ★ | WZ-040 | D5 | |
| ★ | WZ-032 | D6, D28 | |
| ★ | XZ-051 | D24 | |
| ★ | XZ-064 | D25 | |
| ★ | WZ-085 | D29 | |
| | CTB-115 | L1 | Coil |
| | CTF-016 or<br>CTF-078 or<br>CTF-079 | L2, L3 | Ferri-Inductor, 15μH |
| | CCG-070 | TC1 | Trimmer |
| | CSS-021 or<br>CSS-022 | X1 | Quartz Oscillator |
| ★★ | CCP-151 | VR1 | Semi-fixed, 100kΩ(B) |
| ★★ | CCP-158 | VR2 | Semi-fixed, 1.5MΩ(B) |
| | CWB-090 | Front End | |

### RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD1/4PM □□□ J | R1, R21–R23, R26–R30, R35, R50, R54, R58–R60, R80, R100, R104, R105, R108, R109 |
| | RS1/8S □□□ J | R2, R3, R5–R10, R12–R20, R24, R25, R31–R34, R36–R49, R51, R52, R55, R56, R61–R79, R81–R99, R101–R103 Chip Resistor |
| | RD1/4VM □□□ J | R4, R53 |
| | RD1/2PS □□□ J | R57 |
| | RD1/6PS □□□ J | R106, R107 |
| | VACANT | R11 |

### CAPACITORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | CKSYF473Z50 | C1, C17, C54 | Chip Capacitor |
| | CEA470M16LL | C2, C5, C6 | |
| | CEA101M16L | C3, C27 | |
| | CCH-089 | C4 | 33μF/35V |
| | CKSYB102K50 | C7, C8, C29, C30 | Chip Capacitor |
| | CKSYB103K50 | C9 | Chip Capacitor |
| | CEA101M6R3L | C10 | |
| | VACANT | C11 | |
| | CEA010M50NP | C12, C42 | |
| | CEAR22M50LL | C13 | |
| | CEA2R2M25NP | C14 | |
| | CEAR47M50NP | C15 | |
| | CEA0R1M50LL | C16 | |
| | CCSCH220J50 | C18 | Chip Capacitor |
| | CCSCH120J50 | C19 | Chip Capacitor |
| | CCH-059 | C20 | 470μF/6.3V |
| | CEA102M6R3L | C21 | |
| | CEA330M10LL | C22 | |
| | CEAR47M50LL | C23 | |
| | CEA470M10LL | C24 | |
| | CEA2R2M50LL | C25 | |
| | CEA330M16LL | C26 | |
| | CEA100M16LL | C28 | |
| | CCSSL101J50 | C31, C32 | Chip Capacitor |
| | CKSYB682K50 | C33, C34 | Chip Capacitor |
| | CEA010M50LL | C35–C38, C51, C52 | |
| | CCH-085 | C39 | 220μF/10V |
| | CKSYB223K25 | C40, C47–C49 | Chip Capacitor |
| | CEA4R7M50LL | C41 | |
| | CKSYB152K50 | C43, C44 | Chip Capacitor |
| | CEAR33M50LL | C45, C46 | |
| | CQMA223K50L | C50 | |
| | CEA3R3M50LL | C53 | |
| | CKDYB102K50L | C55 | |

## Control Unit (CWM-125) (UKE-3100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | PD7003A or<br>PD7003B | IC1 | |
| ★★ | M54522P | IC2 | |
| ★★ | M54561P | IC3 | |
| ★★ | μPB552C | IC4 | |
| ★★ | AN6540 | IC5 | |
| ★★ | TA7324P | IC6 | |
| ★★ | 2SC2458 or<br>2SC2785 | Q1, Q4, Q7, Q16 | |
| ★★ | 2SA720 or<br>2SA673A | Q2 | |
| ★★ | 2SC1318 or<br>2SC1213 | Q3 | |
| ★★ | 2SK49-F1 | Q5 | |
| ★★ | 2SC1545 | Q6, Q8 | |
| ★★ | 2SC2021 | Q9–Q15, Q17–Q20, Q23, Q25 | |
| ★★ | 2SB822 | Q21, Q22 | |
| ★★ | 2SD1267 | Q24, Q26 | |
| ★ | 1S1555 or<br>1S2473 or<br>US1040 or<br>DS442 or<br>1S2076 | D1, D7–D14, D16–D23, D26, D27, D30–D32, D36 | |
| ★ | SM-1A-02 | D2, D3, D34, D35 | |
| ★ | XZ-117 | D4 | |
| ★ | WZ-040 | D5 | |
| ★ | WZ-032 | D6, D28 | |
| | VACANT | D15, D33 | |
| ★ | XZ-051 | D24 | |
| ★ | XZ-064 | D25 | |
| ★ | WZ-085 | D29 | |
| | CTB-115 | L1 | Coil |
| | CTF-016 or<br>CTF-078 or<br>CTF-079 | L2, L3 | Ferri-Inductor, 15μH |
| | CSS-021 or<br>CSS-022 | X1 | Quartz Oscillator |
| | CWB-104 | Front End | |

### RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD1/4PM □□□ J | R1, R21–R23, R26–R30, R35, R50, R54, R58–R60, R80, R104, R108, R109 |
| | RS1/8S □□□ J | R2, R3, R5–R10, R12–R20, R24, R25, R31–R34, R36–R49, R51, R52, R55, R56, R61–R79, R81–R92 Chip Resistor |
| | RD1/4VM □□□ J | R4, R53 |
| | RD1/2PS □□□ J | R57 |
| | RD1/6PS □□□ J | R106, R107 |
| | VACANT | R11, R93–R103, R105 |

### CAPACITORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | CKSYF473Z50 | C1, C17 | Chip Capacitor |
| | CEA470M16LL | C2, C5, C6 | |
| | CEA101M16L | C3, C27 | |
| | CCH-089 | C4 | 33μF/35V |
| | CKSYB102K50 | C7, C8, C29, C30 | Chip Capacitor |
| | CKSYB103K50 | C9 | Chip Capacitor |
| | CEA101M6R3L | C10 | |
| | VACANT | C11 | |
| | CEA010M50NP | C12, C37, C38, C42 | |
| | CEAR22M50LL | C13, C16 | |

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | CEA2R2M25NP | C14 | |
| | CEAR47M50NP | C15 | |
| | CCSCH220J50 | C18, C19 | Chip Capacitor |
| | CCH-059 | C20 | 470µF/6.3V |
| | CEA102M6R3L | C21 | |
| | CEA330M10LL | C22 | |
| | CEAR47M50LL | C23 | |
| | CEA470M10LL | C24 | |
| | CEA2R2M50LL | C25 | |
| | CEA330M16LL | C26 | |
| | CEA100M16LL | C28 | |
| | CCSSL101J50 | C31, C32 | Chip Capacitor |
| | CKSYB682K50 | C33, C34 | Chip Capacitor |
| | CEA010M50LL | C35, C36 | |
| | CCH-085 | C39 | 220µF/10V |
| | CKSYB223K25 | C40, C47–C49 | Chip Capacitor |
| | CEA4R7M50LL | C41 | |
| | CKSYB152K50 | C43, C44 | Chip Capacitor |
| | CEAR33M50LL | C45, C46 | |
| | CQMA223K50L | C50 | |
| | VACANT | C51–C54 | |
| | CKDYB102K50L | C55 | |

## Front End (CWB-090) (UKE-7100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | P001 | Q1 | |
| ★★ | 2SC2570 | Q2 | |
| ★★ | 2SC1675-M or 2SC2787-M | Q3 | |
| ★★ | 2SC1674 or 2SC2786 | Q4 | |
| ★ | 1SV99 | D1 | |
| ★ | 1SV101 | D2–D7 | |
| | CTC-129 | L1 | Coil |
| | CTC-126 | L2 | Coil |
| | CTC-127 | L3 | Coil |
| | CTC-130 | L4 | Coil |
| | CTC-128 | L5 | Coil |
| | CTC-125 | T1 | IF Transformer |
| | CCG-069 | TC1, TC2 | Trimmer, 10pF |
| | CCL-068 | CG1 | Capacitor (with discharge gap) |

### RESISTORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | RS1/8S □□□ J | R1–R18, R20, R21 | Chip Resistor |
| | RD1/4PM □□□ J | R19 | |

### CHIP CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | CKSYB332K50 | C1, C3, C4, C9–C11, C16, C17 |
| | CCSCH030C50 | C2 |
| | CCSCHR75C50 | C5 |
| | CCSTH120J50 | C6 |
| | CCSCH010C50 | C7 |
| | CCSCH271J50 | C8 |
| | CCSTH080D50 | C12, C14 |
| | CCSTH330J50 | C13 |
| | CCSTH030C50 | C15 |
| | CCSUJ020C50 | C18 |

## Front End (CWB-104) (UKE-3100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | P001 or SD306PA | Q1 | |
| ★★ | 2SC2786 or 2SC1674 | Q2, Q4 | |
| ★★ | 2SC2787-M or 2SC1675-M | Q3 | |
| ★ | ITT-310PF or ITT-310PE | D1–D3 | |
| | CTC-113 | L1 | Coil |
| | CTC-116 | L2 | Coil |
| | CTC-114 | L3 | Coil |
| | CTF-015 | L4 | Ferri-Inductor, 0.82µH |
| | CTC-117 | T1 | IF Transformer |
| | CCG-038 | TC1–TC3 | Trimmer |
| | CCL-068 | CG1 | Capacitor (with discharge gap) |

### CHIP RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RS1/8S □□□ J | R1–R18 |

### CHIP CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | VACANT | C1 |
| | CCSSH070D50 | C2 |
| | CKSYB332K50 | C3, C5–C7, C13–C15, C19, C22 |
| | CCSSH120J50 | C4 |
| | CCSSH060C50 | C8 |
| | CCSCH040C50 | C9 |
| | CCSSH150J50 | C10 |
| | CCSCH010C50 | C11 |
| | CCSCH271J50 | C12 |
| | CCSSH330J50 | C16 |
| | CCSTH100D50 | C17 |
| | CCSTH120J50 | C18 |
| | CCSTH060C50 | C20 |
| | CCSTH030C50 | C21 |

## Tuner Unit (CWE-512) (UKE-7100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | M5215L | IC1, IC2 | |
| ★★ | LA1140 | IC3 | |
| ★★ | LA2110 | IC4 | |
| ★★ | LA3375P | IC5 | |
| ★★ | μPC1215V | *IC6 | |
| ★★ | 2SC2786 or | Q1, Q4 | |
| | 2SC2840 | | |
| ★★ | 2SC2785 or | Q2, Q3 | |
| | 2SC2458 | | |
| ★★ | 2SA1016 or | Q5 | |
| | 2SA872A | | |
| ★★ | 2SK163 | Q6 | |
| | VACANT | D1, D2, D6, D7 | |
| ★ | 1S1555 or | D3–D5, D8, D9, D11–D14 | |
| | 1S2076 or | | |
| | 1S2473 or | | |
| | DS442 | | |
| ★ | MV-11 | D10 | |
| ★ | KV1235 | D15 | |
| | CTF-155 | L1, L6 | Ferri-Inductor, 2.7μH |
| | CTC-138 | L2 | Coil |
| | CTC-144 | L3 | Coil |
| | CTC-132 | L4 | Coil |
| | CTC-133 | L5 | Coil |
| | CTC-057 | L7, L9 | Coil |
| | CTB-096 | L8, L10 | Coil |
| | CTB-097 | L11 | Coil |
| | CTE-092 | L12 | IF Transformer |
| | CTE-115 | L13 | IF Transformer |
| | CTF-101 | CF1–CF3 | Ceramic Filter |
| | CTF-100 | CF4 | Filter |
| | CTF-129 | CF5 | Ceramic Filter |
| | CCG-070 | TC1, TC2 | Trimmer |
| | CWW-107 | CR1 | |
| | CWW-088 | IB1 | Inline Block |
| | CWW-134 | IB2 | Inline Block |
| | CWW-135 | IB3 | Inline Block |
| | CWW-090 | IB4 | Inline Block |
| | CWW-091 | IB5 | Inline Block |
| ★★ | CCP-150 | VR1 | Semi-fixed, 68kΩ(B) |
| ★★ | CCP-145 | VR2, VR5 | Semi-fixed, 10kΩ(B) |
| ★★ | CCP-152 | VR3 | Semi-fixed, 150kΩ(B) |
| ★★ | CCP-146 | VR4 | Semi-fixed, 15kΩ(B) |

### RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD1/4VM □□□ J | R1, R14, R22, R30, R32, R33, R36–R38, R43, R49–R51, R58, *R59, R61 |
| | RS1/8S □□□ J | R2–R10, R15, R19–R21, R25–R29, R31, R34, R39, R41, R42, R44–R48, R53, R56, R57, R60, R62, R64 Chip Resistor |
| | RD1/4PM □□□ J | R23, R24, R35, R40, R52 |
| | VACANT | R11–R13, R16–R18, R54, R55, R63 |

### CAPACITORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | CCSSL010C50 | C1 | Chip Capacitor |
| | CKSYB223K25 | C2, C5, C6, C10–C15, C18 | Chip Capacitor |
| | CKSYB103K50 | C3, C9, C46, C48, C51, C63, C64 | Chip Capacitor |
| | VACANT | C4, C7, C8, C17 | |
| | CEA0R1M50LL | C16, C29, C66 | |
| | CEA4R7M50LL | C19 | |
| | CEA010M50LL | C20, C36, C60 | |
| | CCSSL330J50 | C21, C22 | Chip Capacitor |
| | CCSSL101J50 | C23 | Chip Capacitor |
| | CEA100M16NP | C24 | |
| | CQMA123J50L | C25, C26 | |
| | CEA470M10L | C27, C30 | |
| | CKSYB182K50 | C28 | Chip Capacitor |
| | CKSYB332K50 | C31 | Chip Capacitor |
| | CKSYF473Z50 | C32, C52, C61, C68 | Chip Capacitor |
| | CCH-085 | C33, C67 | 220μF/10V |
| | CEAR22M50LL | C34 | |
| | CEA3R3M35LL | C35, C41 | |
| | CQMA273J50L | C37 | |
| | CQSAH102J50 | C38 | |
| | CQMA333J50L | C39, C40 | |
| | VACANT | C42, C45 | |
| | CKSYB272K50 | C43 | Chip Capacitor |
| | CEAH010M50L | C44 | |
| | CKDBC473K25 | C47, C49, C56 | |
| | CKDBC103K25 | C50 | |
| | CEAH100M16L | C53 | |
| | CCDSH241J50L | C54 | |
| | CCDSH271J50L | C55 | |
| | CCDUJ130J50L | C57 | |
| | CCSSH100D50 | C58 | Chip Capacitor |
| | CEA220M10L | C59 | |
| | VACANT | C62 | |
| | CQMA563J50L | C65 | |
| | CEA470M10LL | C69 | |
| | CKDBC223M25 | C70 | |

**Caution:**

IC *IC6 and resistor *R59 used mutually in the following assembly.

| IC6 | R59 |
|---|---|
| μPC1215V-D | RD1/4VM123J |
| μPC1215V-E | RD1/4VM183J |
| μPC1215V-F | RD1/4VM333J |

## Tuner Unit (CWE-513) (UKE-3100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | M5215L | IC1 | |
| ★★ | LA1140 | IC2 | |
| ★★ | LA3370P | IC3 | |
| ★★ | μPC1215V | *IC4 | |
| ★★ | 2SC2458 or | Q1, Q2, Q4–Q6 | |
| | 2SC2785 | | |
| ★★ | 2SA1048 or | Q3 | |
| | 2SA1175 | | |
| ★★ | 2SC2786 or | Q7 | |
| | 2SC2668 | | |
| ★★ | 2SA1016 or | Q8 | |
| | 2SA872A | | |
| ★★ | 2SK163 | Q9 | |
| ★ | 1S1555 or | D1–D8, D10 | |
| | 1S2076 or | | |
| | 1S2473 or | | |
| | DS442 | | |
| ★ | MV-11 | D9 | |
| ★ | KV1235 | D11 | |
| | CTF-155 | L1 | Ferri-Inductor, 2.7μH |
| | CTC-122 | T1 | Coil |
| | CTC-123 | T2 | Coil |
| | CTC-057 or | T3, T5 | Coil |
| | CTC-058 | | |
| | CTB-096 | T4, T6 | Coil |
| | CTB-097 | T7 | Coil |
| | CTE-092 | T8 | IF Transformer |
| | CTE-115 | T9 | IF Transformer |
| | CTF-101 | CF1–CF3 | Ceramic Filter |
| | CTF-100 | CF4 | Filter |
| | CTF-129 | CF5 | Ceramic Filter |
| | CCG-070 | TC1, TC2 | Trimmer |
| | CWW-090 | IB1 | Inline Block |
| ★★ | CCP-145 | VR1 | Semi-fixed, 10kΩ (B) |
| | VACANT | VR2 | |
| ★★ | CCP-157 | VR3 | Semi-fixed, 1MΩ (B) |
| ★★ | CCP-153 | VR4 | Semi-fixed, 220kΩ (B) |

### RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD1/4VM □□□ J | R1–R17, R19–R24, R26–R29, R31–R33, R35, R36, R38, R39, R41–R61, *R62, R67, R69 |
| | RD1/4PM □□□ J | R18, R30 |
| | RD1/4VM0R0J | R25, R37, R40, R63, R64, R66, R68 0Ω |
| | VACANT | R34, R65 |

### CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | CKDBC223M25 | C1–C4, C7, C56 |
| | CEA0R1M50LL | C5 |
| | CKDBC103M25 | C6, C32, C41, C42, C46, C47, C52–C55 |
| | CCDSL330K50L | C8, C9 |
| | CKDBC473M25 | C10, C13, C25–C27, C31, C33, C34, C38, C40 |
| | CEA4R7M25L | C11 |
| | CKDYB101K50L | C12 |
| | CEA221M10L | C14, C44 |
| | CEAR22M50LL | C15 |
| | CQMA153J50 | C16 |
| | CEA100M16L | C17 |
| | CQSAH102J50 | C18 |
| | CEA2R2M50L | C19, C20 |
| | CEA010M50L | C21 |
| | CEA4R7M16NP | C22 |
| | CQMA223J50 | C23, C24 |
| | CEA010M50LL | C28 |
| | CKDYB272K50L | C29 |
| | CEA470M10L | C30 |
| | CCDXK130J50L | C35 |
| | CCDVK241J50L | C36 |
| | CCDVK271J50L | C37 |
| | CCDCH100J50L | C39 |
| | CEAH100M16L | C43 |
| | CKDYB102K50L | C45 |
| | CEA220M10L | C48 |
| | CEAH010M50L | C49 |
| | CKDBC563M25 | C50 |
| | CEA0R1M50LL | C51 |

**Caution:**

IC *IC4 and resistor *R62 used mutually in the following assembly.

| IC4 | R62 |
|---|---|
| μPC1215V-D | RD1/4VM123J |
| μPC1215V-E | RD1/4VM183J |
| μPC1215V-F | RD1/4VM333J |

## Main Amp Unit (CWH-160)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | μPC1185H2 | IC1 | |
| | RD1/6PS □□□ J | R1–R6 | |
| | RD1/4PM □□□ J | R7 | |
| | RD1/4VM □□□ J | R8 | |
| | CEA2R2M50LL | C1, C2 | |
| | CKDYB102K50L | C3, C4 | |
| | CEA470M10L | C5, C6, C12 | |
| | CQMA104K50L | C7, C8 | |
| | CCH-057 | C9 | 1000μF/10V |
| | CCH-046 | C10 | 1000μF/10V |
| | CCH-058 | C11 | 2200μF/16V |
| | CCH-085 | C13, C14 | 220μF/10V |

## Switch Unit (B) (CWS-123) (UKE-7100)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★ | BG4524K | D1–D7 | LED |
| ★★ | CSG-187 | S1–S4 | Switch (Loud, Loc.s, Mono, Clock) |
| ★★ | CSG-190 | S5 | Switch (70µs) |
| ★★ | CSG-179 | S6 | Switch (Dolby NR) |
| ★★ | CSG-189 | S7 | Switch (M.S) |

## Switch Unit (B) (CWS-124) (UKE-3100)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★ | PG5532TX | D1 | LED |
| ★★ | CSG-187 | S1–S3 | Switch (Loud, Loc.s, Mono) |
| ★★ | CSG-189 | S4 | Switch (M.S) |
| | RD1/6PS271J | R1 | |

## Pre Dolby NR Unit (CWK-267) (UKE-7100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | MB3106MF | IC1 | |
| ★★ | TA7629P | IC2, IC3 | |
| ★★ | BA338 | IC4 | |
| ★★ | 2SC2458 or | Q1–Q4 | |
| | 2SC2785 or | | |
| | 2SC536SP | | |
| ★★ | 2SD468 | Q5 | |
| ★ | 1S1555 or | D1 | |
| | 1S2076 or | | |
| | 1S2473VH or | | |
| | DS442 or | | |
| | WG713 | | |
| ★ | WZ-090 | D2, D3 | |
| ★★ | CCP-171 | VR1, VR2 | Semi-fixed, 330Ω(B) |

### RESISTORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | RS1/8S □□□ J | R1–R6, R11–R34, R38–R41, R44, R45, R47 | Chip Resistor |
| | RD1/6PS □□□ J | R7–R10 | |
| | RD1/4VM □□□ J | R35–R37, R42, R43, R46, R48 | |

### CAPACITORS

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| | CKDYB681K50L | C1, C2 | |
| | CEANL4R7M35LL | C3, C4 | |
| | CEA470M6R3LL | C5, C6 | |
| | CQMA273J50L | C7, C8, C19, C20 | |
| | CQMA153J50L | C9, C10 | |
| | CEANL010M50L | C11, C12 | |
| | CKSYB471K50 | C13 | Chip Capacitor |
| | CKDYB471K50L | C14 | |
| | CEA100M16LL | C15, C16, C23, C24, C43 | |
| | CQMA472J50L | C17, C18 | |
| | CQMA473J50L | C21, C22 | |
| | CQMA562J50L | C25, C26 | |
| | CSZA0R1M35 | C27, C28 | |
| | CSZAR33M25 | C29, C30 | |
| | CCH-085 | C31, C42 | 220µF/10V |
| | CEA010M50LL | C32, C36, C37, C40 | |
| | CQMA822J50L | C33, C34 | |
| | CKSYB103K50 | C35 | Chip Capacitor |
| | CEA2R2M50LL | C38 | |
| | CEA4R7M35LL | C39 | |
| | CEA470M10L | C41 | |

## Pre Amp Unit (CWK-268) (UKE-3100)

### MISCELLANEOUS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| ★★ | TA7325P | IC1 |
| ★★ | BA338 | IC2 |
| ★★ | 2SC1815 or | Q1, Q2 |
| | 2SC945 or | |
| | 2SC536NP | |
| ★ | 1S1555 or | D1 |
| | 1S2076 or | |
| | 1S2473 or | |
| | DS442 or | |
| | US1040 | |
| ★ | WZ-090 | D2 |

### RESISTORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | RD1/4VM □□□ J | R1–R5, R9–R12, R14, R21 |
| | RD1/6PS □□□ J | R6–R8, R13, R15–R17, R19, R20 |
| | VACANT | R18 |

### CAPACITORS

| Mark | Part No. | Symbol & Description |
|---|---|---|
| | CEANL4R7M25L | C1, C2 |
| | CEA470M10L | C3, C4, C19 |
| | CQMA103J50L | C5, C6 |
| | CEA010M50L | C7, C12, C13, C16 |
| | CEA101M16L | C8 |
| | CQMA223K50L | C9, C10 |
| | CQMA392K50L | C11 |
| | CEA2R2M50L | C14 |
| | CEA4R7M25L | C15 |
| | CKDYB681K50L | C17, C18 |

## Bass/Treble Unit (CWG-101) (UKE-7100)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | NJM4558D-D or<br>μPC4558C | IC1 | |
| ★★ | CCS-263 | VR1/S1 | Volume/Switch<br>Volume, 25kΩ(B) x 2,50kΩ(W), 20kΩ(B)<br>(Bass, Treble, Volume, Balance/Tuner) |
| | RD1/4VM □□□ J | R1, R3, R15 | |
| | RD1/4PM □□□ J | R2, R4, R8, R10 | |
| | RD1/6PS □□□ J | R5—R7, R9, R11—R14 | |
| | CQMA682K50L | C1, C2 | |
| | CQMA473K50L | C3, C4 | |
| | CCDSL330K50L | C5, C6 | |
| | CEA100M16LL | C7, C8 | |
| | CEA220M10L | C9 | |
| | CEA470M10L | C10 | |

## Tone Unit (UKE-3100)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | CCS-277 | VR1/S1 | Volume/Switch<br>Volume, 20kΩ(B) x 2,50kΩ(W)<br>(Tone, Volume, Balance/Tuner) |
| | RD1/6PS □□□ J | R1, R2 | |
| | CSYA0R1M25SAN | C1, C2 | |

## Switch Unit (A)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | CSD-021 | S1 | Switch (Band/Tuning) |

## Switch P.C. Board

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | CSF-014 | S1 | Switch (Tuner/Tape) |
| ★★ | CSN-071 | S2 | Switch (Key Off) |

## Head Unit (UKE-7100)

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | CPB-066 | HD1 | Head |
| ★★ | CSH-070 | S1 | Switch (Head Selector) |

## Miscellaneous Parts List

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★ | SM-1A-02 | D1, D2 | |
| | CCH-088 | C1 | 470μF/16V |
| ★★ | CWS-108 | S1 | Switch (FF/REW)<br>(UKE-7100) |
| ★★ | CSN-070 | S1 | Switch (FF/REW)<br>(UKE-3100) |

| Mark | Part No. | Symbol & Description | |
|---|---|---|---|
| ★★ | CPB-064 or<br>CPB-065 | HD1 | Head (UKE-3100) |
| ★ | CXP-035 | SO1 | Solenoid (UKE-7100) |
| ★ | CXP-034 | SO2 | Solenoid (UKE-7100) |
| ★ | CXP-033 | SO1 | Solenoid (UKE-3100) |
| ★ | CXP-032 | SO2 | Solenoid (UKE-3100) |
| ★★ | CXM-104 | M | Motor (UKE-7100) |
| ★★ | CXM-154 | M | Motor (UKE-3100) |
| | CXC-490 | Display | |

# 13. PACKING METHOD

- **Parts List**

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 1. | CRB-453 | Owner's Manual (UKE-7100/US)<br>(English) |
| | | CRD-254 | Owner's Manual (UKE-7100/CA)<br>(English, French) |
| | | CRB-454 | Owner's Manual (UKE-3100/US)<br>(English) |
| | | CRD-255 | Owner's Manual (UKE-3100/CA)<br>(English, French) |
| | | CRG-011 | FM Guide (UKE-7100/US) |
| | | | Card (UKE-7100/US) |
| | | | Card (UKE-7100/CA) |
| | | | Card (UKE-3100/US) |
| | | | Card (UKE-3100/CA) |
| | 2. | | Tag |
| | 3. | CEA-599 | Panel (UKE-7100) |
| | | CEA-600 | Panel (UKE-3100) |
| ★ | 4. | CEA-601 | Knob Kit (UKE-7100) |
| ★ | | CEA-602 | Knob Kit (UKE-3100) |
| ★ | 4-1. | CAA-386 | Knob (Tuning) (UKE-7100) |
| ★ | | CAA-385 | Knob (Tuning) (UKE-3100) |
| ★ | 4-2. | CAA-375 | Knob (Vol, Bal) (UKE-7100) |
| ★ | | CAA-379 | Knob (Vol, Bal) (UKE-3100) |
| ★ | 4-3. | CAA-376 | Knob (Treble) (UKE-7100) |
| ★ | | CAA-387 | Knob (Tone, Band) (UKE-3100) |
| ★ | 4-4. | CAA-377 | Knob (Bass) (UKE-7100) |
| ★ | 4-5. | CAA-378 | Knob (Band) (UKE-7100) |
| | 5. | CHC-460 | Styrofoam (1set pair) |
| | 6. | CNS-708 or<br>CNS-739 | Cover |
| | 7. | CEA-550 | Accessory Kit |
| | 7-1. | CNC-975 | Strap |
| | 7-2. | CDE-437 | Cord |
| | 7-3. | CNV-769 | Washer |
| | 7-4. | CEA-215 | Screw Kit |
| | 7-4-1. | CBA-028 | Screw for Strap |
| | 7-4-2. | B70-055-A | WN4φ x 4.5t |

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 7-4-3. | WS40FMC | Washer |
| | 7-4-4. | PMB50P160FMC | Screw |
| | 7-4-5. | B70-056-A | WN5$\phi$ x 5.3t |
| | 7-4-6. | CND-646 | FW10$\phi$ x 1t |
| | 7-4-7. | CBN-028 | N10$\phi$ x 2t |

| Mark | No. | Part No. | Description |
|---|---|---|---|
| | 7-4-8. | CNS-722 | Cover |
| | 8. | CHC-492 | Contain Box (UKE-7100/US) |
| | | CHC-494 | Contain Box (UKE-3100/US) |
| | 9. | CHC-491 | Carton (UKE-7100) |
| | | CHC-493 | Carton (UKE-3100) |
| | 10. | | Seal (These seals are applied only to the model UKE-7100/CA.)<br>Seal (These seals are applied only to the model UKE-3100/CA.) |

## • Packing Method

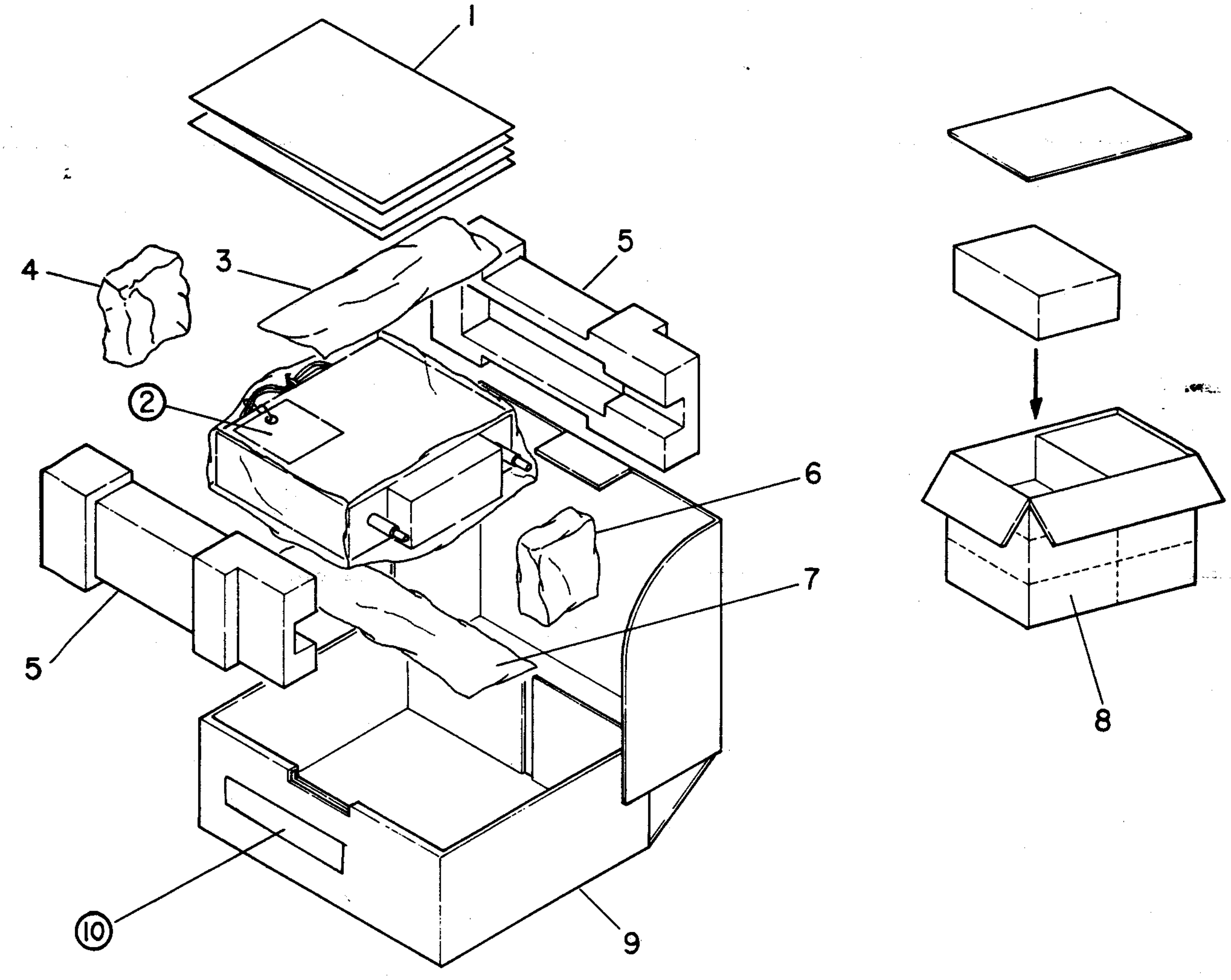


Fig. 35

# 14. TROUBLESHOOTING

This section explains how to repair malfunctions in the scan, clock, display and up/down operations of the model UKE-7100. The parts and circuits that should be studied for each of the operations—scan, clock, display and up/down—are indicated in the explanation.

The Δ mark in the troubleshooting charts indicates that a check shold be performed followed bt a YES/NO or OK/NG judgement and then by possible remedial action.

Any part marked "NG" is quite possibly defective and so a through check is required.

The control section of the model UKE-7100 is configured around the IC1 PD7003A (PD7003B). Therefore, before checking out the circuitry, inspect the PD7003A (PD7003B) for the following points. If the inspection reveals that there is nothing wrong with the IC, it can be assumed that the IC is operational.

| Model | UKE-7100 |
|---|---|
| IC | PD7003A (PD7003B) |
| Supply voltage | Pin 14: Approx. 5.3V |
| Crystal oscillator | Pins 16, 17 |
| Frequency | 4.5 MHz |

A GO/NO GO judgement on the functioning of the PD7003A (PD7003B) is made through the observation of the output waveforms at the pins.

**Example**: No output → Often a defect in the IC itself.
Something wrong with waveforms → Often a problem in the IC's peripheral circuits (or possible defect in IC itself)

The "L" output is equivalent to 0V and the "H" output to 5V or 5.2V. There is no interim value. An oscilloscope should be used to observe the waveforms, and the appropriate range is 0.2V/cm and 0.2 to 1 ms/cm when a **10 : 1** probe is employed.

## Tuning, Voltage System

〔UKE−7100〕

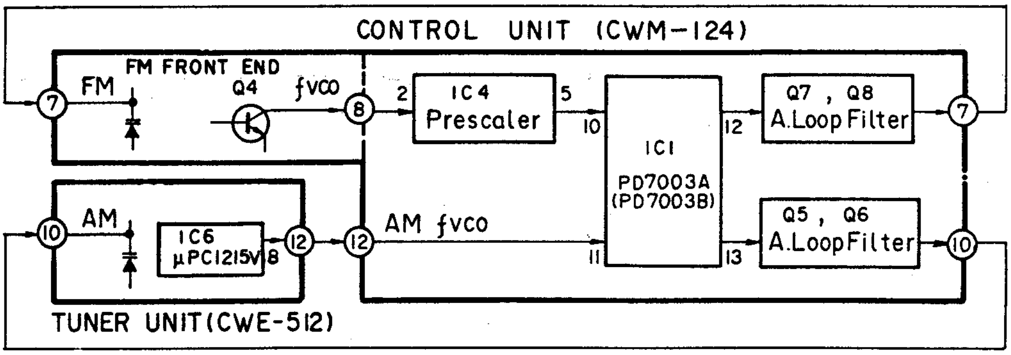

CONTROL UNIT (CWM−124)
FM FRONT END
FM
Q4
ƒvco
7
8
2
IC4
Prescaler
5
10
IC1
PD7003A
(PD7003B)
12
Q7 , Q8
A.Loop Filter
7
AM
10
IC6
μPC1215V
8
12
12
AM ƒvco
11
13
Q5 , Q6
A.LoopFilter
10
TUNER UNIT(CWE-512)

Fig. 36

## Scan, Stop, Signal System

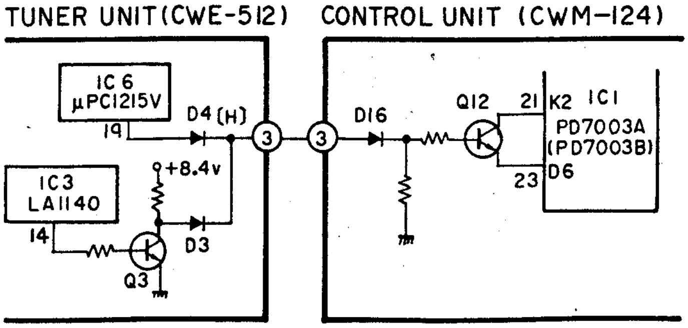

TUNER UNIT(CWE-512)
CONTROL UNIT (CWM−124)
IC 6
μPC1215V
19
D4 (H)
+8.4v
IC3
LA1140
14
Q3
D3
3
3
D16
Q12
21
K2
IC1
PD7003A
(PD7003B)
23
D6

Fig. 37

## Power System

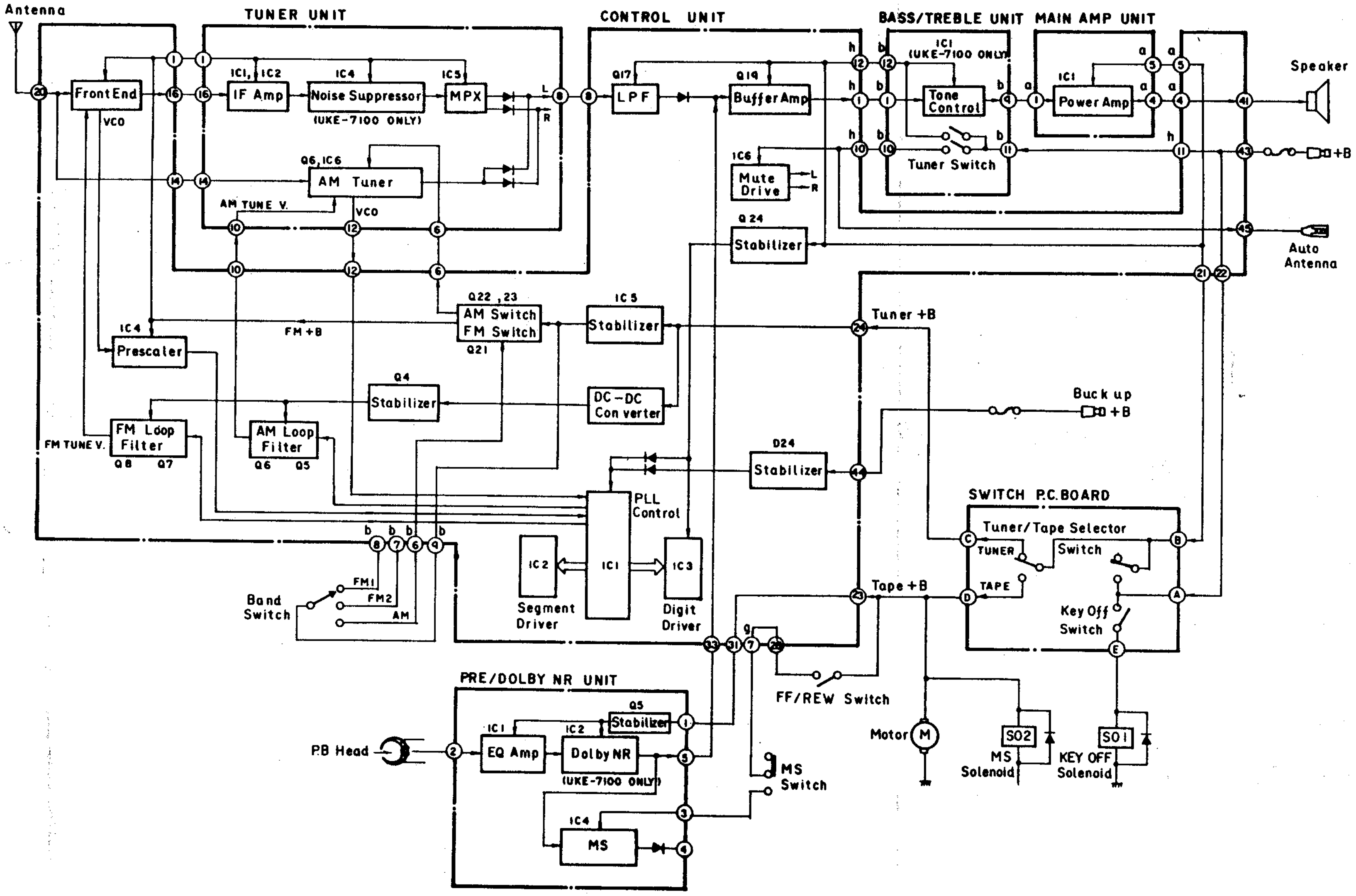

Antenna
TUNER UNIT
CONTROL UNIT
BASS/TREBLE UNIT
MAIN AMP UNIT
Speaker
Front End
VCO
IC1, IC2
IF Amp
IC4
Noise Suppressor
(UKE-7100 ONLY)
IC5
MPX
L
R
Q6, IC6
AM Tuner
AM TUNE V.
VCO
Q17
LPF
Q19
Buffer Amp
IC1
(UKE-7100 ONLY)
Tone Control
Tuner Switch
IC1
Power Amp
IC6
Mute Drive
Q24
Stabilizer
+B
Auto Antenna
Q22, 23
AM Switch
FM Switch
Q21
FM +B
IC5
Stabilizer
Tuner +B
IC4
Prescaler
Q4
Stabilizer
DC-DC Con verter
Buck up
+B
FM Loop Filter
FM TUNE V.
Q8
Q7
AM Loop Filter
Q6
Q5
D24
Stabilizer
PLL Control
SWITCH P.C. BOARD
Tuner/Tape Selector Switch
TUNER
TAPE
Key Off Switch
Band Switch
FM1
FM2
AM
IC2
Segment Driver
IC1
IC3
Digit Driver
Tape +B
FF/REW Switch
Motor
M
SO2
MS Solenoid
SO1
KEY OFF Solenoid
PRE/DOLBY NR UNIT
Q5
Stabilizer
IC1
EQ Amp
IC2
Dolby NR
(UKE-7100 ONLY)
IC4
MS
MS Switch
P.B Head

Fig. 38

## Display System

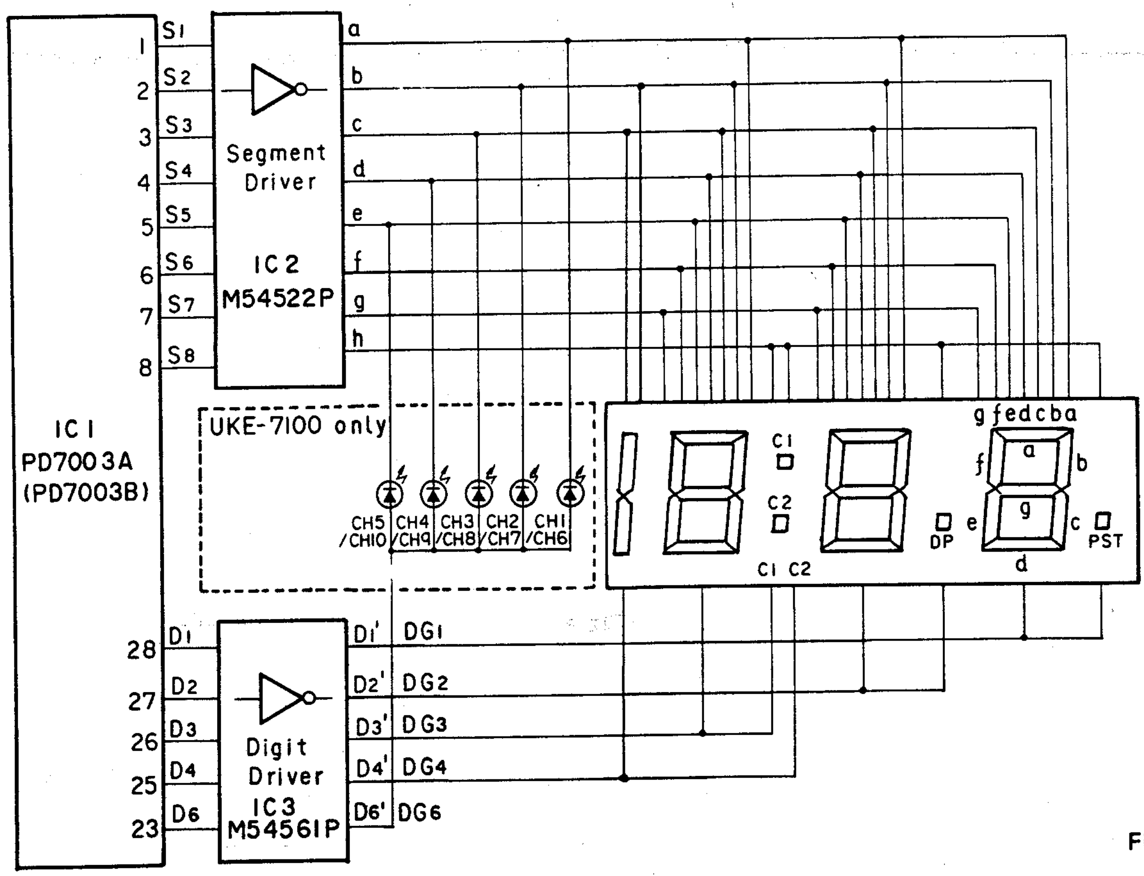

IC1
PD7003A
(PD7003B)
1
2
3
4
5
6
7
8
28
27
26
25
23
S1
S2
S3
S4
S5
S6
S7
S8
Segment
Driver
IC2
M54522P
a
b
c
d
e
f
g
h
UKE-7100 only
CH5
/CH10
CH4
/CH9
CH3
/CH8
CH2
/CH7
CH1
/CH6
g f e d c b a
C1
C2
C1 C2
DP
PST
a
b
c
d
e
f
g
D1
D2
D3
D4
D6
Digit
Driver
IC3
M54561P
D1'
D2'
D3'
D4'
D6'
DG1
DG2
DG3
DG4
DG6

Fig. 39

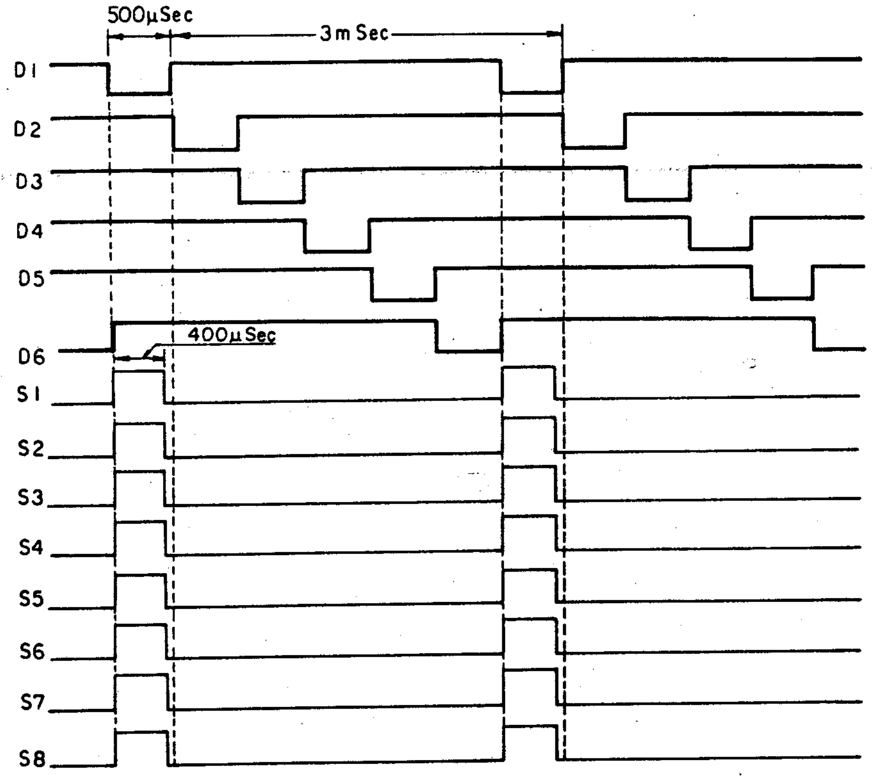


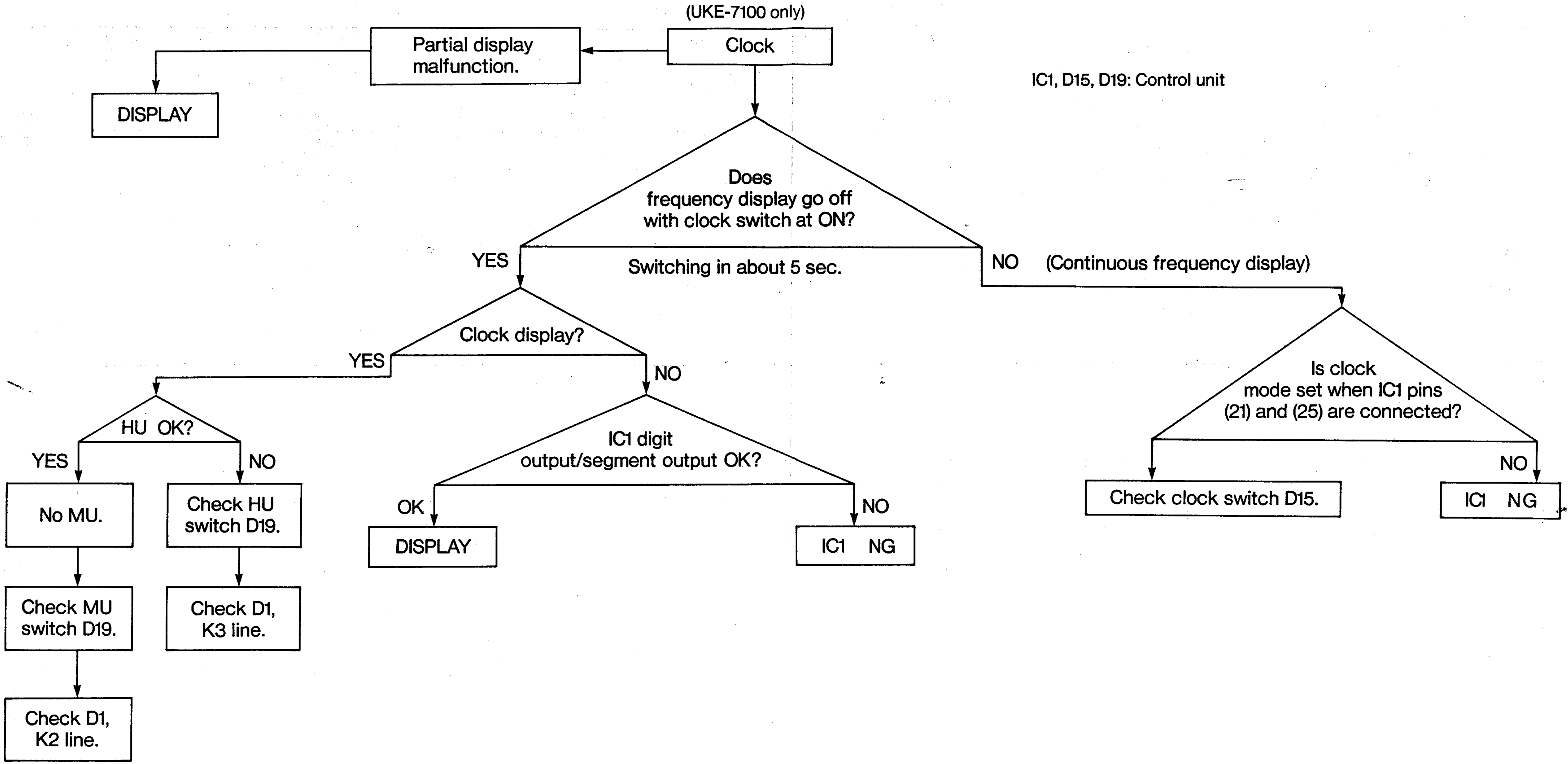
Fig. 40

Example: When 8. of DG1 is ON.

## LED drive matrix

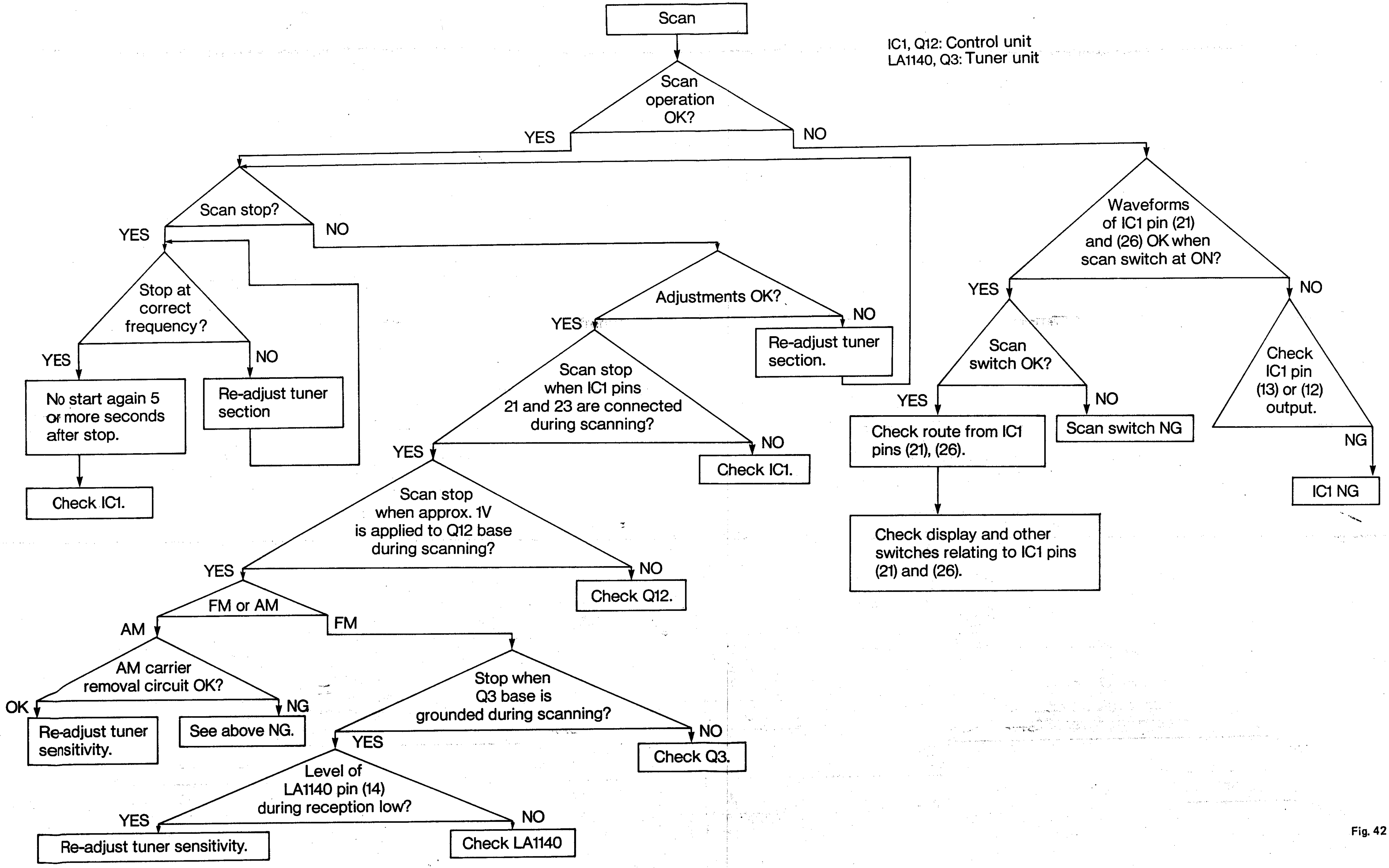
| Segment drive output active "H" / Digit drive output active "L" | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 |
|---|---|---|---|---|---|---|---|---|
| D1 | DG1<br>a | DG1<br>b | DG1<br>c | DG1<br>d | DG1<br>e | DG1<br>f | DG1<br>g | DG1<br>PST |
| D2 | DG2<br>a | DG2<br>b | DG2<br>c | DG2<br>d | DG2<br>e | DG2<br>f | DG2<br>g | DG2<br>DP |
| D3 | DG3<br>a | DG3<br>b | DG3<br>c | DG3<br>d | DG3<br>e | DG3<br>f | DG3<br>g | DG3<br>C1 |
| D4 | DG4<br>a | DG4<br>b | DG4<br>c | DG4<br>d | DG4<br>e | DG4<br>f | DG4<br>g | DG4<br>C2 |
| D5 | DG5<br>AM(R) |  | DG5<br>FM1 | DG5<br>FM2 |  | DG5<br>PM | DG5<br>AM(C) |  |
| D6 | DG6<br>CH1/CH6 | DG6<br>CH2/CH7 | DG6<br>CH3/CH8 | DG6<br>CH4/CH9 | DG6<br>CH5/CH10 |  |  |  |

Note: D5 is not used in UKE-7100 and 3100
D6 is not used in UKE-3100.


(UKE-7100 only)
Clock
Partial display malfunction.
DISPLAY
Does frequency display go off with clock switch at ON?
YES
Switching in about 5 sec.
NO
(Continuous frequency display)
Clock display?
YES
NO
HU OK?
YES
NO
No MU.
Check HU switch D19.
Check MU switch D19.
Check D1, K3 line.
Check D1, K2 line.
IC1 digit output/segment output OK?
OK
NO
DISPLAY
IC1 NG
Is clock mode set when IC1 pins (21) and (25) are connected?
NO
Check clock switch D15.
IC1 NG

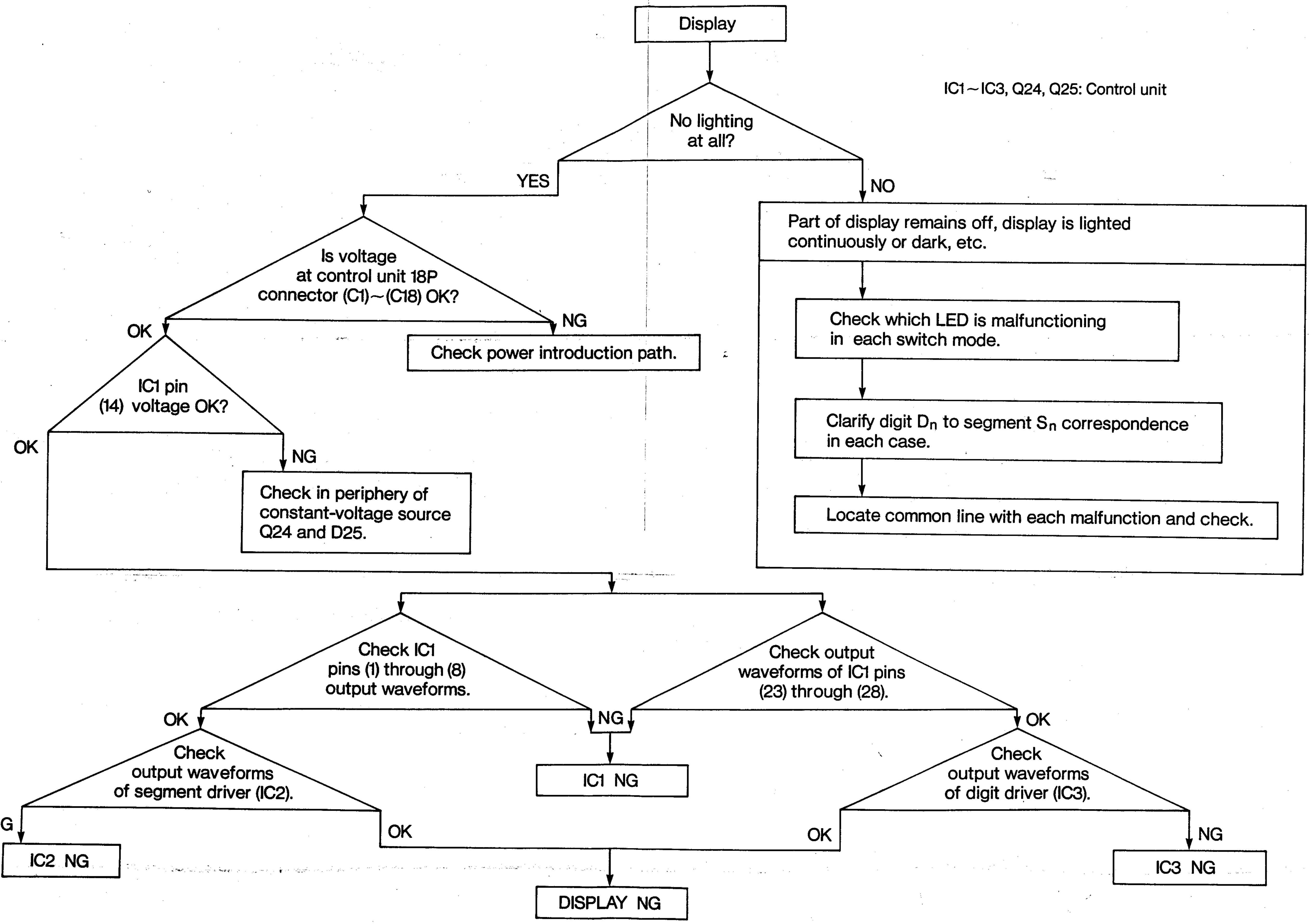
IC1, D15, D19: Control unit

Fig. 41


Scan
Scan operation OK?
YES
NO
Scan stop?
YES
NO
Stop at correct frequency?
YES
NO
No start again 5 or more seconds after stop.
Check IC1.
Re-adjust tuner section
Adjustments OK?
YES
NO
Re-adjust tuner section.
Scan stop when IC1 pins 21 and 23 are connected during scanning?
YES
NO
Check IC1.
Scan stop when approx. 1V is applied to Q12 base during scanning?
YES
NO
Check Q12.
FM or AM
AM
FM
AM carrier removal circuit OK?
OK
NG
Re-adjust tuner sensitivity.
See above NG.
Stop when Q3 base is grounded during scanning?
YES
NO
Check Q3.
Level of LA1140 pin (14) during reception low?
YES
NO
Re-adjust tuner sensitivity.
Check LA1140
Waveforms of IC1 pin (21) and (26) OK when scan switch at ON?
YES
NO
Scan switch OK?
YES
NO
Check route from IC1 pins (21), (26).
Scan switch NG
Check display and other switches relating to IC1 pins (21) and (26).
Check IC1 pin (13) or (12) output.
NG
IC1 NG

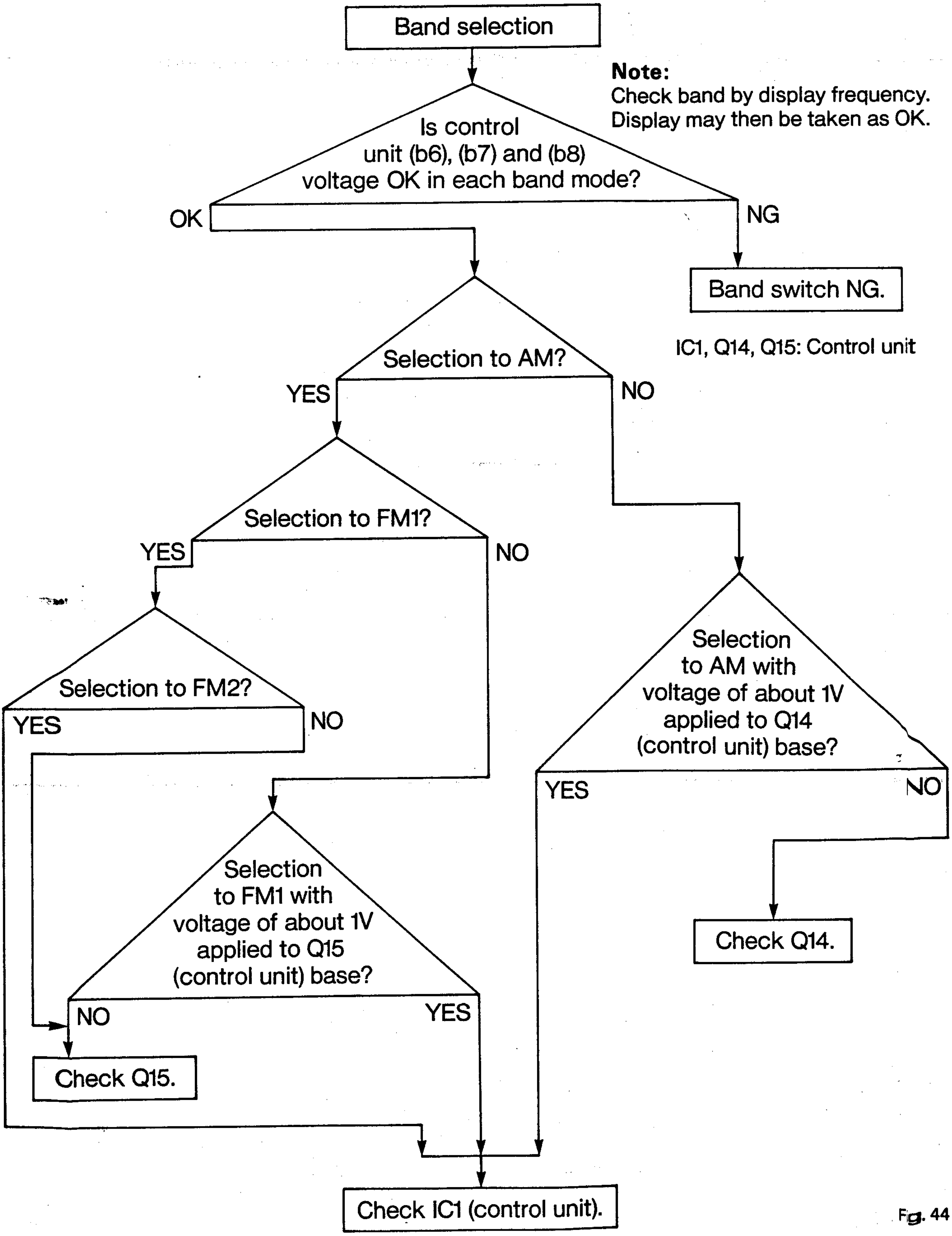
IC1, Q12: Control unit
LA1140, Q3: Tuner unit

Fig. 42


Display
No lighting at all?
YES
NO
Is voltage at control unit 18P connector (C1)~(C18) OK?
OK
NG
Check power introduction path.
IC1 pin (14) voltage OK?
OK
NG
Check in periphery of constant-voltage source Q24 and D25.
Part of display remains off, display is lighted continuously or dark, etc.
Check which LED is malfunctioning in each switch mode.
Clarify digit Dn to segment Sn correspondence in each case.
Locate common line with each malfunction and check.
Check IC1 pins (1) through (8) output waveforms.
Check output waveforms of IC1 pins (23) through (28).
OK
NG
NG
OK
IC1 NG
Check output waveforms of segment driver (IC2).
Check output waveforms of digit driver (IC3).
NG
OK
OK
NG
IC2 NG
DISPLAY NG
IC3 NG

IC1~IC3, Q24, Q25: Control unit

Fig. 43


Band selection
Is control unit (b6), (b7) and (b8) voltage OK in each band mode?
OK
NG
Band switch NG.
Selection to AM?
YES
NO
Selection to FM1?
YES
NO
Selection to FM2?
YES
NO
Selection to AM with voltage of about 1V applied to Q14 (control unit) base?
YES
NO
Check Q14.
Selection to FM1 with voltage of about 1V applied to Q15 (control unit) base?
NO
YES
Check Q15.
Check IC1 (control unit).

**Note:**
Check band by display frequency.
Display may then be taken as OK.

IC1, Q14, Q15: Control unit

Fig. 44

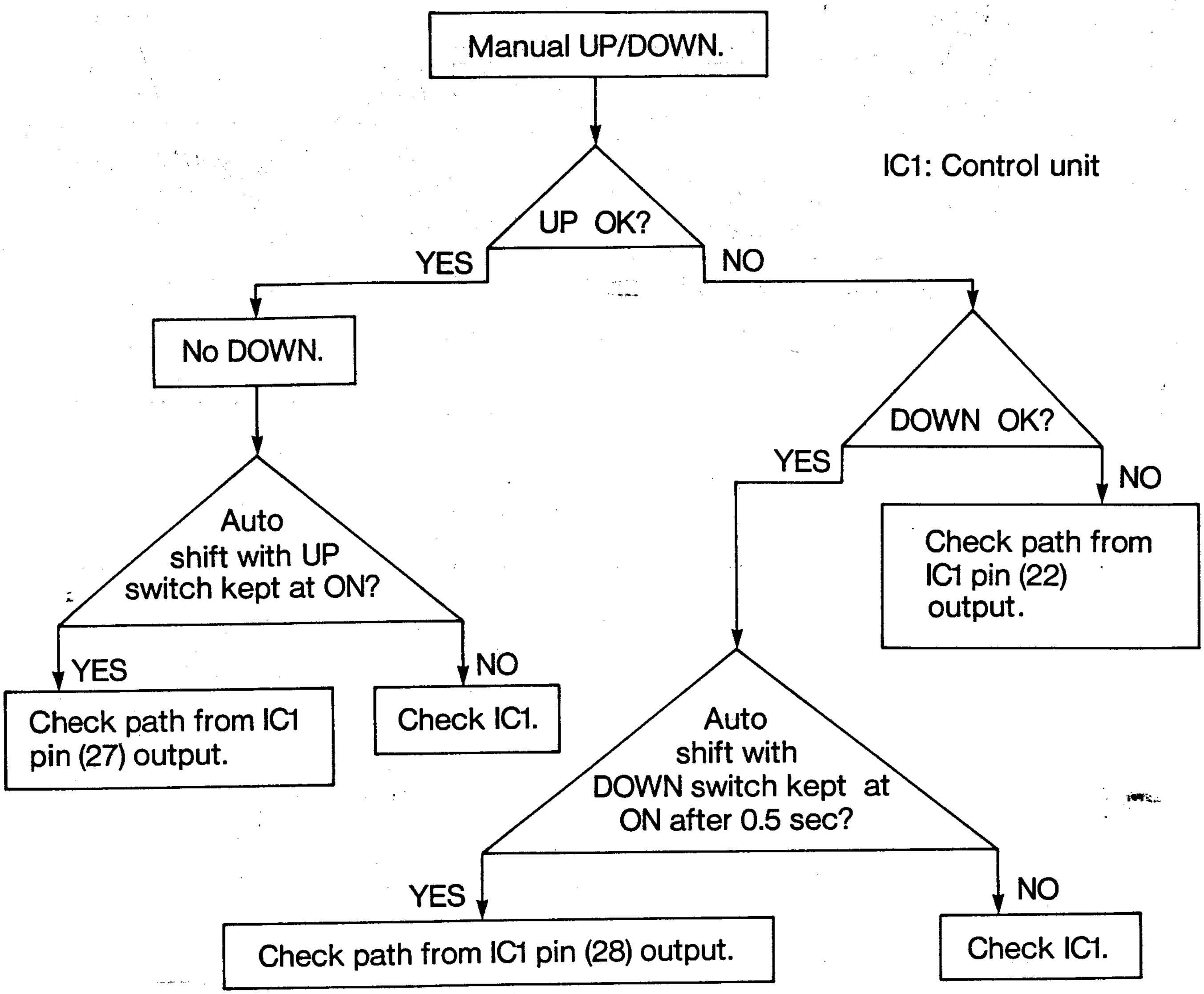

Manual UP/DOWN.
UP OK?
YES
NO
No DOWN.
Auto shift with UP switch kept at ON?
YES
NO
Check path from IC1 pin (27) output.
Check IC1.
DOWN OK?
YES
NO
Check path from IC1 pin (22) output.
Auto shift with DOWN switch kept at ON after 0.5 sec?
YES
NO
Check path from IC1 pin (28) output.
Check IC1.
IC1: Control unit

Fig. 45